DECEMBER, 1959

Traffic Engineering

Official Publication of the Institute of Traffic Engineers

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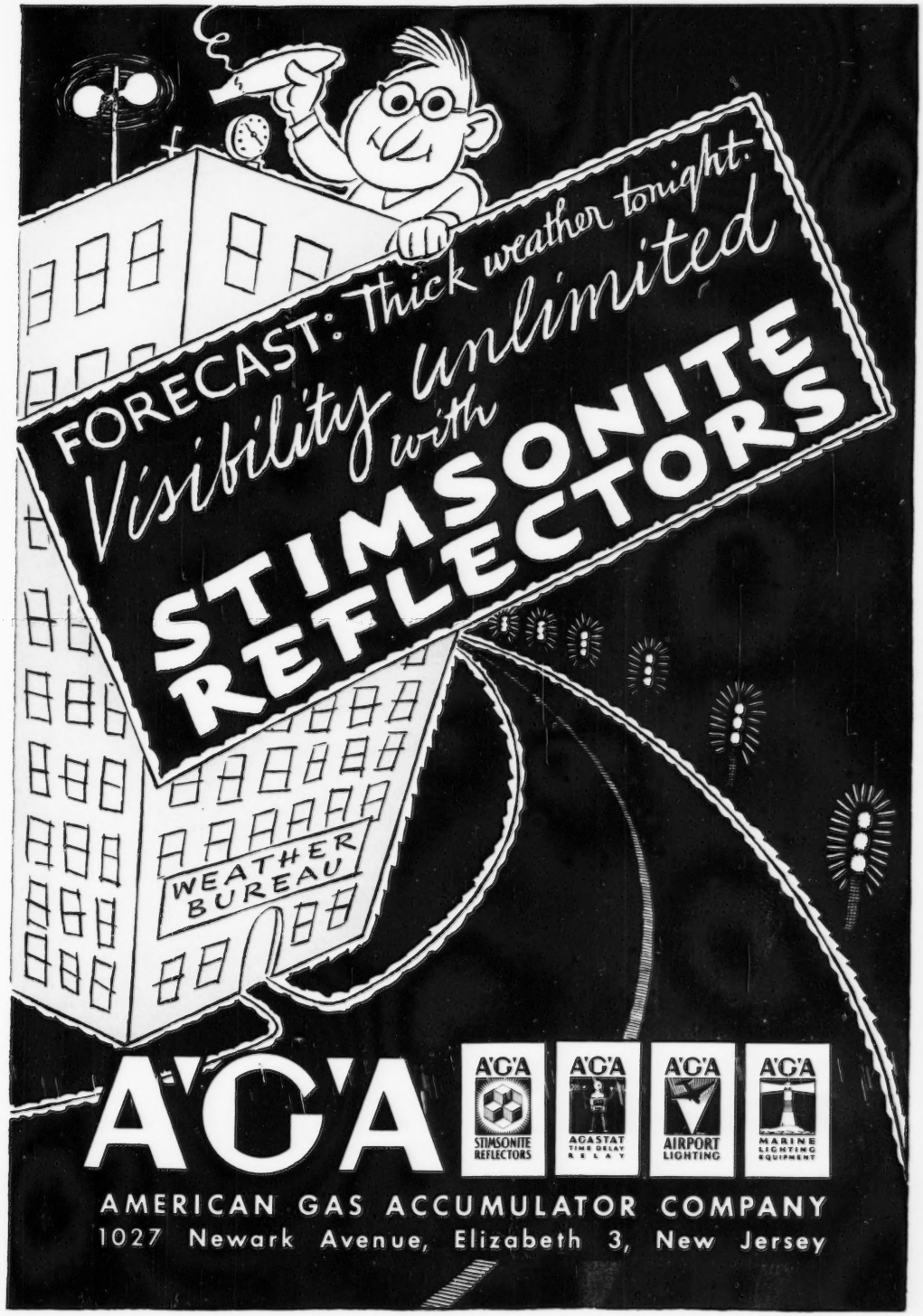
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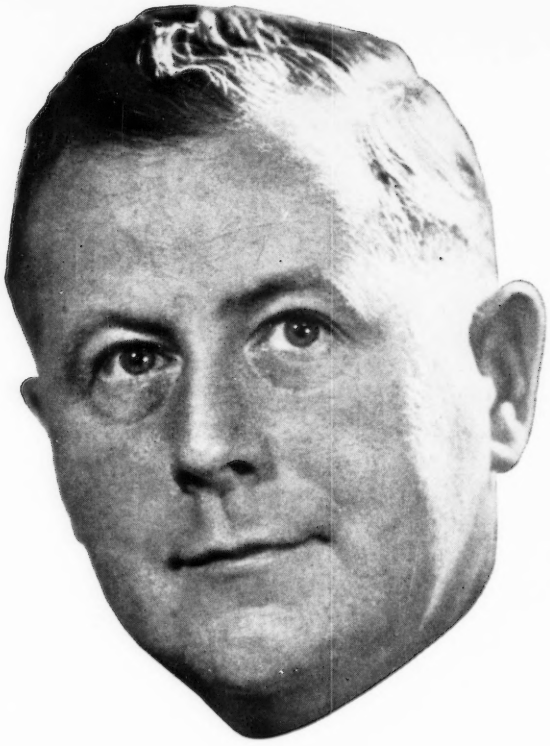

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Traffic Engineering

OFFICIAL PUBLICATION OF THE INSTITUTE OF TRAFFIC ENGINEERS

VOLUME XXI | DECEMBER, 1950 | NUMBER 3

COVER: This illustrates improved street lighting on McNichols Road in Detroit, Michigan. Note article by L. J. Schrenk.

Traffic Engineering is that phase of engineering which deals with the planning and geometric design of streets, highways, and abutting lands, and with traffic operation thereon, as their use is related to the safe, convenient, and economic transportation of persons and goods.

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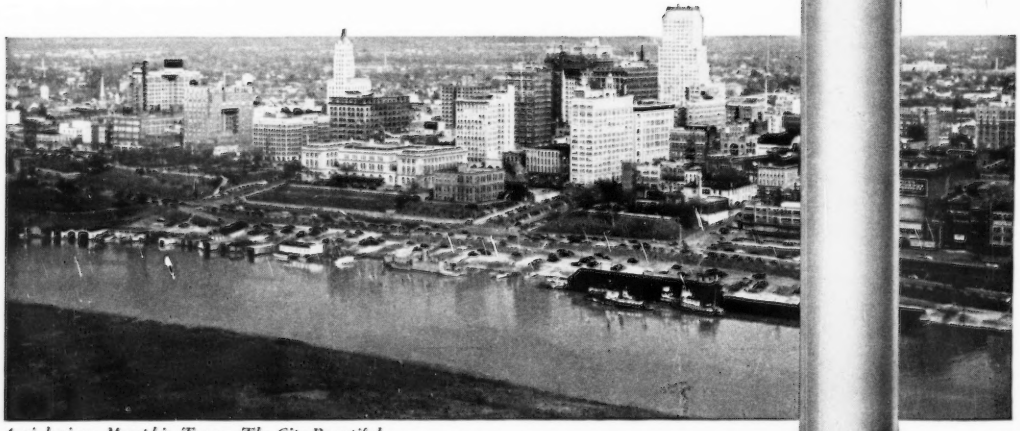

Aerial view, Memphis, Tenn.—The City Beautiful.

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Frankly Speaking

"Street and Highway Needs"—a subject with which the planning and traffic engineer has concerned himself and which has found expression in numerous reports of varying degrees of excellence and practicability. In the earlier years there was an exceedingly high mortality rate as regards follow-through and implementation, due in large part to a proposed program being "up in the clouds" as regards practicability money-wise; and in some cases by reason of paper projections being impossible of execution due to failure to fully explore limiting physical controls and dimensional requirements of sound engineering design.

In recent years there has been a decided upswing in the number of practical and feasible "NEEDS" reports with a decreased mortality rate as regards their implementation. Undoubtedly there will be further improvement as the store of knowledge and experience increases.

Granted that the engineering staff can supply a practical and feasible program, it appears that there is considerable room for improvement in efforts exerted, by those in position to do so, in seeing that some measure of concrete action is taken. Our legislative and administrative bodies have their problems, however, the engineer is not, directly at least, in position to carry the torch in the follow-through or action phase.

With the utmost regard for those who are "doing a job," it would seem that the field is not overly crowded as yet and that there is still room for more "torch bearers" in high places.

F. B. Marshall

Vice-President

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Salesmanship In Traffic Engineering

By George W. Howie (Mem., ITE)
Traffic Engineer, City of Cincinnati, Ohio

If you have nothing to sell the public but "Stop" signs, "No Parking", "Slow", "Caution", "Careful" you're in bad shape. Nobody wants to be restricted. You're trying to sell something 99% of your prospective customers think they don't want.

Traffic Engineers have one important commodity to sell that 99% of Americans do know they want—"SAFE, CONVENIENT AND ECONOMICAL TRANSPORTATION OF PERSONS AND GOODS."

Any traffic engineering project, large or small, which completely fulfills that definition, can be sold. It will result in saving of life, limb, and property. It will facilitate traffic movement and cost will be reasonable when weighed against benefits.

Projects which seem to only partially fulfill these objectives are hard to sell. Four-way stops, for example, generally contribute little except safety, hence are not well-liked by motorists; for most drivers they seem to detract from convenience and economy.

A traffic engineer can fall rapidly into disfavor by too-large doses of restrictive measures. One traffic engineer recently has become locally known as "Stop Sign Henry"; another Traffic Engineer gained the local nickname of "Forever Amber" because pedestrians thought his new "Walk-Wait" signals stayed amber too long.

It certainly is a sad commentary on our ability as salesmen if we traffic engineers can't wrap up a few minor restrictions—"Stop", "Slow", "Yield Right-of-Way", "Don't Park"—inside the benefits we can offer, and then do a bang-up job of selling them to the public. Especially so, when the candy on the outside tastes so good—in fact, we have reason to believe that once you get a community accustomed to the diet in the form of lives saved, smoother traffic flow, less time loss in traffic, our kind of sugar coating is downright habit forming.

Give them enough of the right kind and they will be rapping on your door, asking for more of the same—and hang the cost.

Some Practical Applications

That summarizes the author's philosophy in this field of selling traffic engineering. Now, let's get down to some practical applications and see them at work. Here are some of the elements of a program that can be sold.

Be right in basic principles. Poor engineering and blunders can be sold once or twice but there will be few repeat orders.

Be practical and realistic. Many a traffic engineer has stumbled, through his failure to remember the adage about leading a horse to water.

Be honest with yourself and others. Recognize there are two sides in almost every issue; however, have the courage to back up your own decisions.

Do first things first—in other words, build a sound traffic structure before doing the decorating.

Lean toward safety; always remember, however, that transportation, not stagnation, must be your net result.

Develop a program; sell it to superiors; many decisions thenceforward will be easier if weighed in relation to that program.

"Make no little plans"—a series of unrelated jobs is not a traffic engineering program.

Cooperate with fellow workers. Loss of their friendly cooperation can sabotage your program.

Be truthful and frank with newspaper men—they generally respect a confidence.

Develop citizen interest and backing in your program. Make achievements of your objectives the accomplishment of a program already adopted by such groups as your Safety Council.

Give credit to others—remember that often it is the only payment a volunteer aide may receive.

Be willing to accept responsibility, and to accept blame for what is wrong. Don't grasp for praise but don't shrink from receiving proper credit for a job well done.

Develop the respect of key men in the community—they can make or break you regardless of others.

Dramatize yourself; your job; your program. Almost every successful man in public affairs can look back upon a period of showmanship which aided his rise.

Learn to speak clearly and simply. Many engineers when on their feet get involved in too many words with which the audience is unfamiliar.

Rely on staff members to accept responsibility so that the traffic engineer can budget his time to be at the right place at the right time.

Keep up with the world; learn what other traffic engineers are doing—their successes and troubles—and learn about new materials and techniques.

Other Elements in a Successful Program

Now a few words about newspaper and radio, which are elements, but not necessarily the most important ones, in a public relations program.

Basic elements of press releases are:

(1) accuracy
(2) brevity
(3) simplicity
(4) conformance with local newspaper style
(5) newsworthiness

Pictures and drawings always are of value.

Don't avoid repetition—the same story can be told over and over if given a new twist. Create order and continuity in press releases so that the program can be followed by newspaper readers.

In preparing radio material, simplicity is paramount.

(See SALESMANSHIP, page 96)

Traffic Engineering In Smaller Cities

By Robert S. Holmes
Executive Secretary, Institute of Traffic Engineers, New Haven, Connecticut

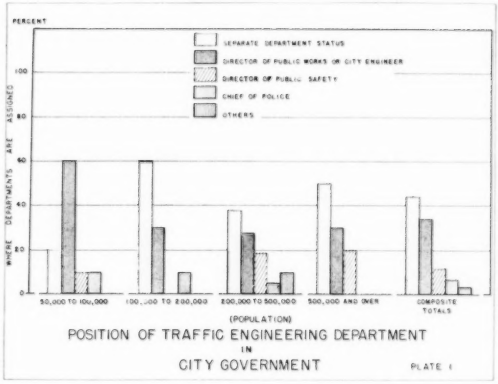
This paper was presented at the National Safety Congress, October 18, 1950, Chicago, Illinois. By special agreement with the Editor of PUBLIC SAFETY *magazine it is being reproduced simultaneously in the December issue of both publications.*

MUCH has been written[1] in the past few years concerning traffic engineering activities in cities of 50,000 population and over. The Institute of Traffic Engineers, in cooperation with official and non-official organizations has been devoting its primary effort in this regard toward standardization of laws[2] and ordinances, functional organization, duties and responsibilities of traffic engineering departments, and qualifications of the city traffic engineer. While much progress has been made, considerable effort must yet be expended in order to correlate and evaluate these important factors of "big city" traffic engineering activities.

Traffic Engineering in the Larger Cities

Earlier this year a confidential questionnaire was mailed from Institute headquarters to the traffic engineers of 65 selected cities 50,000 population and over. The questions were phrased to determine: (1) the position of the traffic engineering department in the city government; (2) salary ranges for the key traffic engineering personnel; (3) types of authorization under which city traffic engineers are now functioning; (4) organizational structure in relation to other governmental units; and (5) availability of civil service examinations for city traffic engineering positions. The 59 cities (90%) responding provided excellent factual results and geographical coverage as they represented 32 states and the District of Columbia.

Information on salaries will be retained at Institute headquarters as confidential matter, but is available to interested city officials and traffic engineers upon request. The principle value of this information is its use as a guide in establishing new traffic engineering departments, and in the re-organization of existing departments. The information dealing with ordinances, organization charts, and civil service examinations will be turned over to the ITE Committee on Traffic Engineering Administration for screening and development of uniform standards. The information relating to the position of the traffic engineering department in the city government has been analyzed and tabulated on Plate No. 1.



POSITION OF TRAFFIC ENGINEERING DEPARTMENT IN CITY GOVERNMENT PLATE 1

Of the 59 cities reporting, 26, or 44 per cent, have separate department status, reporting direct to the Mayor or City Manager. In 20 cities, or 34 per cent, the traffic engineering department is assigned to the Director of Public Works or City Engineer. Seven, or 12 per cent, place it under the Director of Public Safety, and 4, or 7 per cent, are assigned to the Chief of Police. Of the two cities with other assignments, one reports to a Traffic Commission and one to the Department of Improvements and Parks. It is encouraging to note that the predominant and desirable trend (78%) is toward Separate Department Status (44%) and assignment to the Director of Public Works or City Engineer (34%).

The Smaller Cities

Let us now turn to the problem of traffic engineering in smaller cities. The recommended action program of the 1949 report of the Committee on Engineering, The President's Highway Safety Conference states, in part, as follows: "8. In specific recognition of the need for better staffing of official agencies concerned with highway-engineering problems, it is recommended that there be established: . . . d. In cities having less than 50,000 population, an engineer-preferably the director of the department of public works, the city engineer, or some member of his staff—with qualifications and experience necessary to perform the functions of traffic engineer."

Apparently no attempt was made to define the lower limits of the term "less than 50,000 population." It is safe to assume that this limit should be at the 10,000 population level. It is at this point that the Municipal Year Book[3]

[1] "*The Organization of Official Traffic Agencies in Cities & States*", 1946 The Eno Foundation, Saugatuck, Conn.; "*Traffic Engineering Functions and Administration*", 1948, Public Administration Service, 1313 E. 60th St., Chicago 37, Ill.; "*Report of Committee on Engineering*", The President's Highway Safety Conference, 1949, Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C.

[2] *Act V, The Uniform Vehicle Code and Model Traffic Ordinance*, Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C.

[3] Published annually by International City Managers Association.

discontinues its roster of Public Works Director or City Engineer.

The Traffic engineering profession has generally accepted the 50,000 population level as the line of demarcation between full-time and part-time traffic engineering services for cities. The trend in development of traffic engineering departments over a period of time has confirmed this arbitrary deduction. There are but few exceptions. Perhaps the level should be pushed downward to 45,000 or 40,000. The continued increase in motor traffic, availability of funds, and public demand will largely determine future needs in cities less than 50,000 population.

In order to obtain a fairly accurate appraisal of traffic engineering activity in smaller cities a request for information was recently mailed to the 200 cities in the 25,000 to 50,000 population group, based on preliminary 1950 census figures. A special letter with accompanying questionnaire (Plate No. 2) was directed to the Mayors and City Managers. The questionnaire was designed so that it could be answered in five or ten minutes time. Replies were received from 65 cities, or 32.5 per cent of those contacted. While this rate of return was low, a wide geographic distribution was obtained since 30 states were represented. (Should it be assumed that a majority of the remaining 135 cities' officials failed to reply because of lack of interest, knowledge, or recognition of the traffic problem?).

Cities With Traffic Engineers

The first two questions were phrased to determine if there was a traffic engineer in the city, and, if so, to which municipal department was he assigned. Of the 65 cities reporting, 19, or 29 per cent, stated they employed a traffic engineer, and 46, or 71 per cent, returned a negative answer. Of the 19 cities reporting a traffic engineer, 3, or 4.5 per cent, indicated that he functioned as a separate department; 13, or 20 per cent showed assignment to the Engineering Department; and 3 were allocated to the Police Department. Further analysis revealed that only 3 cities actually hired a full-time traffic engineer. Strangely enough, these 3 cities identified themselves as belonging in the 35,000 to 40,000 population group. The 13 cities reporting assignment to the Engineering Department indicated that the City Engineer was also "doubling in brass" as Traffic Engineer. Similarly for the 3 cities showing assignment to the Police Department.

Why No Traffic Engineer?

The third question related to the 46 cities (71%) indicating no city traffic engineer in their employ. The city officials were asked to give the principle reason for not employing a traffic engineer. The results are tabulated in Table I below.

TABLE I

WHY NO TRAFFIC ENGINEER?

Replies	No. of Cities	Per Cent
Insufficient Work (other city employees can handle)	20	43%
Not Warranted (city too small to justify traffic engineer)	15	33%
Financially unable	6	13%
No Answer	5	11%
	46	100%

It will be noted that a majority of the cities replying did not feel there was sufficient work to keep a full-time traffic engineer busy, but that such work could be easily handled by other city employees. Another group reasoned that the city was too small to justify a traffic engineer. Only six cities stated they were financially unable to employ a traffic engineer, leaving it to one's imagination to determine if this was the *only* obstacle that presented itself. The remaining five cities gave no reasons for not having a traffic engineer.

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(Enclosed envelope is for your convenience in returning this questionnaire)

I. Is there a traffic engineer in your city? Yes _____ No _____

II. If answer to the first question is YES to which of the following Municipal Departments is your traffic engineer assigned (check one):

A. Separate Department?
B. Engineering Department?
C. Police Department?
D. Electrical Department?
E. Planning Commission?
F. Other?

Please attach a copy of your local ordinance or administrative order outlining the duties and responsibilities of your traffic engineer, or person acting in this capacity, and the required qualifications for the position.

III. If answer to the first question is NO, what is the principle reason why you do not have a traffic engineer?

IV. Who performs the following traffic engineering functions? (Check under the appropriate heading for each)

	Traf. Engr.	Engr. Dept.	Pol. Dept.	Elec. Dept.	Plan Comm.
A. Installation of traffic control devices (signs, signals, markings).					
B. Street lighting.					
C. Analysis of accident records.					
D. Application of traffic regulations (curb parking, 1-way streets, pedestrian control, etc.)					
E. Traffic Surveys and studies.					
F. Channelization and intersection redesign.					
G. Other traffic design.					

V. If no traffic engineering services are available, how do you consider that they should be obtained (check one):

A. By hiring a full-time traffic engineer?
B. By sustained consulting service?
C. By assistance from State Highway Depts.?
D. Other? (explain)

VI. Have traffic surveys and studies been made for your city in recent years? Yes _____ No _____

If answer is YES, indicate type of study, who made them, and dates. (Use back of sheet if necessary)

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PLATE 2

Assignment of Traffic Engineering Responsibility

It was anticipated that relatively few cities in the selected population bracket would have full-time traffic engineering personnel. Accordingly, the fourth, and most important question, was designed to determine which of the existing city departments was responsible for various traffic engineering functions. A complete analysis of the replies is shown in Plate No. 3. In a few instances a dual responsibility was indicated. Although the traffic engineer is shown as a separate entity, it must be remembered that his primary duty, as noted above, is City Engineer.

The installation of traffic control devices (signs, signals, markings) appears to be the primary responsibility of the police (39%), with the engineering (22%) and electrical (28%) departments sharing a substantial portion of the responsibility.

The engineering department (44%) and the electrical department (45%), as to be expected, equally share responsibilities for street lighting.

Accident records (87%) and application of traffic regulations (78%) to include curb parking, one-way streets, pedestrian control, etc., are primary responsibilities of the police.

Traffic surveys and studies are also handled principally by the police (47%) and to a slightly less degree by the engineering department (31%).

Channelization and intersection redesign responsibility is largely allocated to the engineering department (51%)

with a substantial portion assigned to the police (25%). Other traffic design functions follow the same general pattern.

Of special note is the fact that the electrical department has no responsibilities outside of traffic control devices and street lighting. It should also be noted that the Planning Commission (sometimes referred to in the replies as Traffic and Transportation Commission) held very little responsibility in connection with devices, lighting, accident records, and regulations, but assumed increasing responsibilities in connection with the "planning" function of surveys and studies, channelization and intersection redesign, and other traffic design.

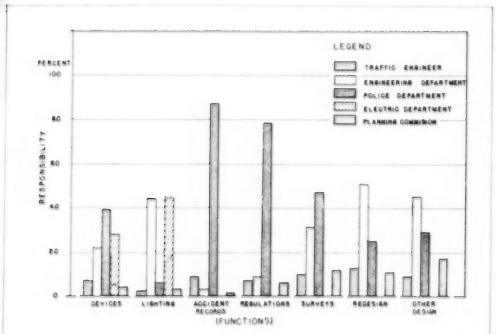
A composite analysis of all functions reveals that the police department retains the lion's share, 44 per cent, the combined engineering department and traffic engineer 37 per cent, the electrical department 10%, and the planning commission 9%.

How Traffic Engineering Services Are Obtained

The fifth question was phrased to determine how traffic engineering services should be obtained if none were available within the city structure. Only 37 of the 65 cities submitted answers to this question. Six cities, or 16%, felt that a full-time traffic engineer was the best method of making traffic engineering services available. Since 3 of these cities already employed a full-time traffic engineer, there remain 3 additional cities who may be contemplating employment of a traffic engineer. Thirteen cities, or 35%, indicated a desire for sustained consulting service to assist in the solution of their traffic problem. Fourteen cities, or 38% believed that traffic engineering services could best be provided by assistance from state highway departments. Three cities were of the opinion that cooperate effort of their several existing departments was the answer, and one city was firmly convinced that one of their young engineers should be sent to school for specialized training.

Extent of Traffic Surveys and Studies

The final question related indirectly to the preceding question and sought to determine if traffic surveys and studies had been made for the city in recent years, and if so, the type of study and by whom they were made. Of the 65 cities reporting, 50, or 77 per cent, reported a traffic survey, and 15, or 23 per cent, reported no traffic studies in recent years. An interesting analogy drawn from the replies showed that 16 cities failing to answer the preceding question on availability of traffic engineering services, reported that traffic surveys had been conducted by the state highway department in recent years. The question immediately arises as to why these cities failed to recognize the assistance that had been provided by the state highway department. Perhaps the answer can be found in improved state-city relationships.[4]



TRAFFIC ENGINEERING ACTIVITY

PLATE 3

A large majority of the 50 cities reporting a traffic survey indicated assistance from state highway departments, and to a lesser degree by consultants. The types of studies ran the gamut of traffic engineering functions, including general traffic surveys, O-D studies, volume counts, parking, one-way streets, speed, routing, accident analysis, signal timing, etc.

Conclusions

As a result of the return from the questionnaire it may be concluded that cities in the 25,000 to 50,000 population group, generaly speaking:

1. Do not have full-time traffic engineers;
2. Have no need, desire, or justification for employing a traffic engineer;
3. Allocate any traffic engineering functions principally to their engineering and police departments;
4. Favor provision of traffic engineering services by state highway departments or sustained consulting service; and
5. Have been exposed to numerous traffic surveys and studies during recent years.

Based on the conclusions, many conversations with state traffic engineers and traffic engineering consultants, and information secured through regular correspondence channels at Institute headquarters it is the personal opinion of the author that cities below 50,000 population, with a few exceptions, do not require full-time traffic engineering services at the present time. However, even in these cities, the application of proven engineering techniques to the traffic problem is *essential* if congestion is to be alleviated, traffic control and operation improved and accidents reduced.

It is therefore suggested that cities below 50,000 population:

1. Adopt, in principle, the recommendation of the Committee on Engineering of the President's Highway Safety Conference, referred to above;
2. Make every effort to obtain specialized traffic engineering knowledge and training for the city engineer or an engineer on his staff responsible for traffic engineering work;
3. Assign increasing responsibility for all traffic engineering functions to the Engineering Department; and
4. Obtain technical traffic engineering assistance by:
   (a) Seeking assistance from the traffic engineer on the staff of the state highway department and/or,
   (b) Retaining a consulting traffic engineer on an annual contract basis.

[4]Reference is made to a recent study entitled "*State-City Relationships in Highway Affairs*", 1950, Yale University Press, New Haven, Conn.

Winnipeg's Parking Meters - 'Before' and 'After'

By Ralph W. Borrowman (Assoc. Mem., ITE)
Associate Planner, Metropolitan Planning Commission, Winnipeg, Canada

AFTER due consideration of numerous pertinent factors, including public opinion, the City Council of the City of Winnipeg in July 1949, approved a by-law providing for the trial installation of parking meters on certain downtown streets as shown in Figure 1. Since the future of parking meters in this city would in all likelihood depend almost entirely upon the success of this trial, the Winnipeg Town Planning Commission and the Metropolitan Planning Commission, two organizations sponsoring meter use, considered it prudent to secure detailed information concerning the effect of parking meters on local street parking practice. They therefore approved a plan whereby "Before" and "After" Field Surveys would be conducted to provide the necessary factual data.

The Field Surveys

On October 11, 1949, a few days prior to meter installation, a group of University students, under the direction of the Planning Staff, proceeded to carry out a "Before" survey of parking practice. Recording of vehicles was made every 15 minutes with observed data being entered on previously prepared field sheets. By recording license numbers, accurate identification of individual vehicles throughout the one day survey was possible.

After meters were installed and placed in operation, there was an immediate though temporary change in parking habits. Many motorists at the start would not use parking meters, and found space elsewhere on the street or in off-street facilities a short distance from their destinations. These motorists consist of the following distinct types, from a parking meter using point of view:

1) Those who object to the principle of paying for the use of convenient street space, and who prefer increased walking distance to paying a small fee.
2) Those who generally park for long periods, and who find parking at five cents per hour if not expensive, at least inconvenient, whether they move their car every hour, make hourly trips to the street to "feed the meter", or make an occasional visit to the local police station to answer an overparking summons.
3) Those who find the extra few blocks' walk too great an inconvenience and who shortly return to use metered space near their destination.
4) Those who dislike changing their habits, and who avoid meters as long as they can but who eventually become accustomed to meters and to paying a small fee for parking space.

The latter two types return to use metered space, and together with motorists who accepted meters at the start, form the group which must be provided with adequate short-time parking space.

In Winnipeg, adjustment to meters extended over a period of from two weeks, at which time the steady flow of complaints and requests for information on meter operation tapered off, to about one month, when use of metered street space appeared to have acquired a fairly constant pattern. Generally, it is considered advisable to set back the "After" survey for a few months to assure completion of the adjustment period, and to allow an additional period of grace. When adjustment appeared complete, however, the arrival of cold winter weather was imminent. During such weather, it is customary for some motorists to place their cars in dead storage to avoid difficulties of cold weather operation. It was necessary therefore, if the abnormal effect on survey results of stored vehicles was to be avoided, to conduct the "After" survey as soon as possible after parking habits were re-established, or to delay it until the next spring or summer.

Since judgment on the trial use of meters would likely take place before results from a spring or summer survey would be available, it was decided to forego the additional grace period, and to proceed with the "After" studies at once. This decision was carried out six weeks after meter installation in the same manner and on the same day of the week as the "Before" survey, to provide comparative data.

Analysis of Data

Data tabulated on the field sheets was transferred to summary sheets to facilitate "Before" and "After" comparisons. Following is an analysis of the effect of meters as portrayed by calculations made from these summary sheets.

Overparked Vehicles

Both surveys were summarized from the point of view of vehicles found in legal street parking spaces to show what effect parking meters had on the number of cars and trucks parking beyond the time limits permitted by the Traffic and Parking Meter By-laws.

Where parking meters were installed, the 30-minute parking area was eliminated, and parking spaces previously permitting 30-minute parking were changed to permit 60-minute parking. For this reason, it was not possible to show a direct comparison of parking practice "before" and "after" in 30-minute parking areas. It is significant, however, that despite doubling the parking time limit in all former 30-minute zones, there was an increase of 16.14% in the total number of legally parked vehicles.

A further major point is the fact that the number of overparked vehicles, of all types, stated as a percentage of

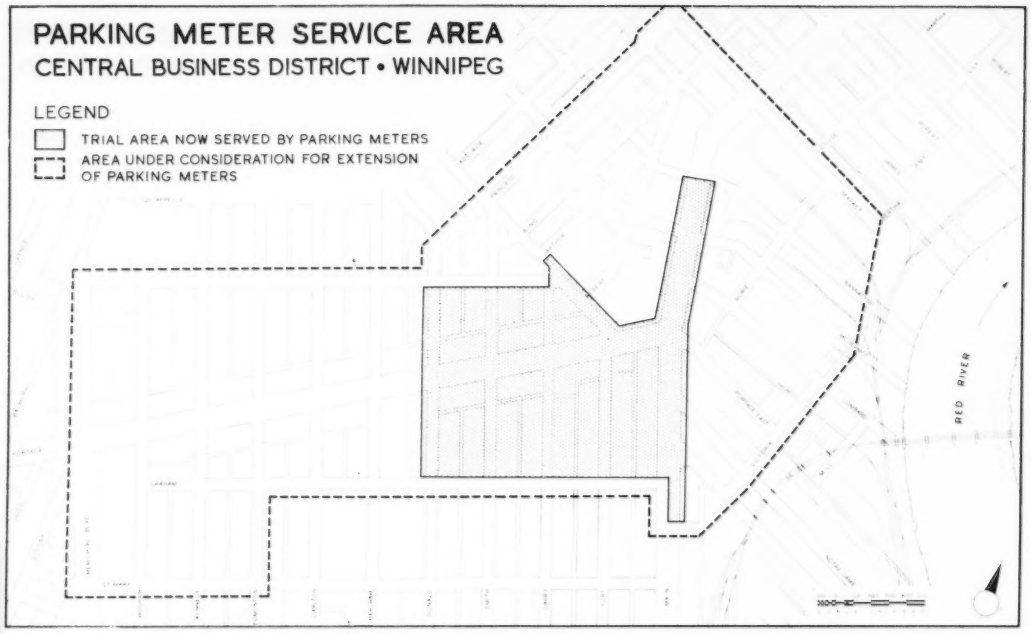

PARKING METER SERVICE AREA
CENTRAL BUSINESS DISTRICT • WINNIPEG
LEGEND
TRIAL AREA NOW SERVED BY PARKING METERS
AREA UNDER CONSIDERATION FOR EXTENSION OF PARKING METERS
RED RIVER

Fig. 1

the total parked vehicles, was greatly reduced with the installation of parking meters.

Since the total number of vehicles recorded "before" and "after" were similar (2839 and 2680), it is reasonably accurate to compare the number of overparked vehicles directly in terms of percentage reduction of overparking to show a reduction of 64.66% for cars, 66.00% for trucks, and 64.77% overall.

Hours of Overparking

A summarization of parking time showed clearly that meters effected an even greater reduction in the number of hours of overparking. In the comparison of the 15-minute and 12-minute parking areas, a slight increase in the percentage of overparking hours for trucks was noted. While this one result was at variance with other similar items, it was not considered as being particularly significant, since in checking the field data, it was found that the number of trucks represented was so small as to be inconclusive.

Comparing total overparking hours, a percentage reduction in overtime hours of 67.53% for cars, 63.83% for trucks, and 67.35% overall was noted.

With this considerable reduction in overtime hours, amounting to over 335 hours, there is provided the equivalent of:

335 extra 60-minute parking spaces,
or 670 extra 30-minute parking spaces,
or 1340 extra 15-minute parking spaces.

It is also of interest to note that the average vehicle was parked for 11.48% less time after meters were installed, and that both before and after meter installation, trucks parked for shorter periods than did passenger cars.

While meters have made a remarkable contribution to the improvement of downtown street parking, there are still many parking violations, with over 10% of all parked vehicles in the metered area parking overtime. In checking back on the field data, numerous flagrant examples of overparking were noted with vehicles being recorded in one hour zones for periods ranging from 15 minutes to 3½ hours or more. In at least two cases, vehicles were probably parked for as long as 5¼ and 6¼ hours. In the 12-minute zones, overtime parking was less evident although some vehicles were recorded as parked for as long as 1¼ hours. During the survey, recording was suspended throughout the noon hour, so that many vehicles could have parked even longer than the records show.

Vacant Parking Space

Regardless of how much overparking exists, the true picture of parking space shortage can only be shown by the number of vacant spaces which are available where and when required.

Vacancies in the "Before" survey were difficult to determine accurately due to poor parking practices which caused changing parking patterns with waste space in some places, and congestion in others. As finally determined, the 304 available parking stalls were unoccupied a sufficient number of times as to provide 490 vacant time spaces before meters were installed, in the morning, and 515 in the afternoon. After meters were installed, the total of these vacancies in the same number of parking stalls was increased to 1167 and 643 for morning and afternoon respectively. The net increase in vacancies was from 1005 to 1810, or an increase of 80.10%.

It is of interest to note that by far the largest increase in vacancies occurred in the morning, particularly in the

first hour or two and on streets most distant from the heart of the commercial area. This would indicate that many long-time parkers, who normally started parking earlier in the day than do short-time parkers, were using parking facilities elsewhere, leaving metered curb space for the short-time parkers. Previously, curb space was filled early in the day, making it difficult for short-time parkers to park their cars in order to conduct their business. While there was some increase in available curb space in the latter part of the morning and in the afternoon, it was noted in the field survey that there was still some additional need, particularly in the afternoon. During the whole of the afternoon only 643 vacancies were indicated for 304 legal parking spaces, or an average of only two vacancies per parking space. At this time, there were noted numerous cases of parking time violations, with some parkers holding individual spaces far beyond the prescribed time limits. It would appear that if any further improvement is to be effected, parking time infractions should be more closely supervised on streets where demand is high, particularly in the late afternoon and rush hour periods.

Turnover

Where parking demand is extremely heavy, the rate of turnover in legal parking spaces provides an excellent measure of the degree of efficiency of space used, and by this measure of efficiency, indicates to what degree regulations are observed. Where parking demand is not so great, vacancies occur, and the turnover ratio does not provide as accurate a measure of regulation observance.

Using data obtained from a summary of legal parking stalls in the metered area, together with the number of hours these stalls were used, and the number of vehicles actually using them, the turnover ratio for any location can be determined.

$$\text{Turnover Ratio} = \frac{\text{Cars per hour}}{\text{Number of Stalls}} = \frac{\text{Cars}}{\text{Stall Hours}}$$

In the area under consideration, there were 15-, 30-, and 60-minute parking areas before meters were installed, and 12- and 60-minute parking areas after meter installation. Parking was observed during both surveys for a total of 6½ hours except where NO PARKING regulations from 4:00 to 6:00 P.M. reduced this time to 5½ hours. This exception affected 23 stalls in the 30-minute zones, and 11 stalls in the 60-minute zones before meter installation, and 48 stalls all in the 60-minute zones, after meters were installed.

The following table shows a summary of this data, and the actual turnover ratios as determined by the above formula, on the basis of total parked vehicles.

Turnover ratios of 5.00, 4.00, 2.00, and 1.00 would indicate that 12-, 15-, 30-, and 60-minute parking areas were operating at design capacity. From this table it is apparent that the 30- and 60-minute parking areas are being used near design capacity, although actual turnover ratios could be higher than the design ratios noted above where parking demand is high and where regulations are strictly observed and enforced, since many parked vehicles would not remain for the full parking period.

In the case of both the 12- and 15-minute zones, the turnover ratios of 2.11 and 1.88 are far less than might be expected. This condition is the result of either or both of two factors. These factors are overparking, and non-use. The first does not cause serious parking congestion if the second is also present, but where space is in demand, overparking seriously restricts legitimate use of street space. In the latter case legal parking periods should be strictly enforced to insure efficient and equitable use of existing space. If turnover is low through non-use of available space, then the parking fee may be too high, or the space may not be suitably located to serve a demand for the type of parking provided. Where turnover is low for any reason, some corrective action should be taken to permit increased use.

The following table shows that while there was considerable overparking, it did not cause a serious parking space shortage. In the 15-minute areas before meters were installed, 479 vehicles used 35 stalls for 183.25 hours out of a total possible of 227.5 hours. Of the 183.25 hours used, 63.5, or about one-third of the used hours, were overtime parking hours. Even with this large amount of overparking, only 80% of the available hours were used. In the 12-minute areas after meters were installed, 220 vehicles used 18 stalls for 67.50 hours out of a total possible of 117.0 hours. In this case, overtime parking hours were reduced to 12.5, and the total used hours were less than 60% of those available. It is apparent therefore that the low turnover ratio is due to both overtime parking and non-use.

In regard to non-use of parking space, it is important to note that it exists to a greater extent in the morning, although the "After" survey of 12-minute parking also showed considerable fluctuation in use throughout the day. In some periods of the day space was used fully, indicating that there is at times sufficient demand to justify the provision of this parking time limit for curb parking. At other

TURNOVER RATIO

ITEM	BEFORE				AFTER		
	Legal Parking Period						
	15	30	60	Total	12	60	Total
Number of cars	479	1537	823	2839	220	2460	2680
Number of stalls available 6.5 hours	35	116	119	270	18	238	256
Number of stalls available 5.5 hours	—	23	11	34	—	48	48
Total Available Hours of Parking	227.5	880.5	834.0	1942.0	117.0	1811.0	1928.0
Turnover Ratio	2.11	1.75	0.99	1.46	1.88	1.36	1.39

times of the day space is not used to best advantage. At such times it might be convenient to change permissible parking time periods, thus permitting greater use of downtown curb space. Such a variation of legal parking time might, however, cause more confusion than it was worth, and might not be possible where meters were used. It should therefore be regarded with some caution.

It can be said that, at least for the present, parking demand is generally not heavy, but there are peaks when available space is used fully. At peak periods, turnover ratios are high, but off-peak low turnovers, due to non-use and overparking, lower the overall turnover ratio considerably. While the overall turnover ratio is low, there seems no great problem, since demand is not generally heavy throughout the day. As demand increases, the turnover ratio will have greater significance, and will indicate better where enforcement should be increased, and possibly where increased off-street facilities should be provided.

General

With the installation of parking meters, there was an immediate reduction in the number of vehicles using metered spaces. This process over a period of several weeks, gradually reversed itself to the point where the total number of vehicles using metered space was close to the previous total using non-metered space.

In addition to the improvement in overtime parking previously discussed, there was also a remarkable improvement in the use of parking stalls. Before meter installation there had been undue congestion in some places, with waste space at times occurring in the same block. With the use of meters, the spacing between vehicles was standardized, and the overall parking spaces were made of sufficient length as to permit easier entrance to and exit from parking stalls. As a result of better spacing and ease in parking, vehicles were parked closer to and parallel to the-curb thus reducing conflict with moving traffic on the street, and greatly improving the overall street appearance.

In areas close to the meter trial area, there was by casual observation, a marked increase in the number of vehicles using available street parking space. Since these areas were already in regular use, there was some increase in congestion. This congestion was relieved to some extent as motorists became familiar with the use of meters and started moving back to the metered area to park. It is evident, however, that the area selected for meter trial, is not the only area which could benefit greatly by metered street parking, and it seems desirable to give immediate study to other areas with a view to more extensive meter installations.

The survey indicates that passenger cars contribute far more to the downtown street parking problem than do trucks. There are of course far more cars than trucks to be accommodated, and for this reason more frequent traffic violations are to be expected with passenger cars. The percentage of all passenger cars which overpark, is greatly in excess of the percentage of all trucks which overpark, and the average car is parked longer than the average truck. In view of the fact that in Winnipeg trucks are permitted to use metered parking spaces as well as street loading areas for purposes of loading and unloading without payment of fee, it might be expected to find trucks as more frequent offenders in regard to overparking. This, however, has not been indicated.

Conclusions

It has been claimed that the installation of parking meters would reduce overtime parking. Since the installation of parking meters, the number of overparked vehicles has been reduced by approximately 65% and the hours of overtime parking have been reduced by approximately 67%. Largely through this reduction in overtime parking, available street parking spaces have been increased by over 80%, and there was an increase of 16% in legally parked vehicles. Despite this vast improvement effected by the use of parking meters, it is significant that there is still far too much overparking. If greater reduction of overparking is desired it will be necessary to conduct a campaign of education and enforcement for a period of time.

It is generally claimed that meters increase turnover. This is undoubtedly true where demand is great, but in Winnipeg demand apparently is not yet sufficiently great throughout the day to indicate an overall increase in the turnover ratio. Meters have, however, provided additional vacancies in existing spaces which permit easy parking at almost any hour of the day. As demand increases, present spaces will be used more often, thus increasing turnover.

Congestion, a feature of non-metered parking, has been almost entirely eliminated where meters have been installed. Positioning of vehicles has been greatly improved with the front of vehicles being placed in line with meter posts. By this same means, the spacing between vehicles has been standardized to provide ample maneuvering space, which permits easier parking. A noticeable improvement has been effected in the appearance of parked vehicles, which now park parallel and closer to the curb at regular intervals. While there are as yet no substantiating statistics, it seems reasonable to expect a reduction in the number of bumped fenders, and broken head lights, since with easier and better parking there is less contact between parked vehicles. A decrease in minor collision and sideswiping accidents should also become evident, since there should be less interference with moving traffic in adjacent lanes. By the same reasoning, delays to moving traffic should be reduced in some degree.

Certain other advantageous features claimed with meter use include reduced trucking and delivery times, greater convenience for shoppers and tourists, saving of police time, economy of enforcement costs, improved enforcement, and elimination of doubtful violation cases. In the "Before" and "After" surveys, it was not possible to gather information to prove these points statistically, but in most cases the claims are self-evident. In regard to trucking and delivery times, and to convenience for shoppers and tourists, it seems quite evident that where congestion is reduced, and where parking space is more readily available and easier to use, there will be definite advantages. A check was made with several messenger and delivery services, who advisd that there was a marked improvement, and that pick-ups and deliveries were greatly facilitated.

City police advised that in metered areas, enforcement was more effective and parking violations were more readily detected. Enforcement was also more efficient since one police officer could patrol three times as many spaces as in non-metered areas. This was done using motorcycles or

(See WINNIPEG'S PARKING, *page 98)*

Ann Arbor Discontinues One-Way Operation of Two Streets

By R. C. Eastman (Mem., ITE)
Planning Director, City Planning Commission, Ann Arbor, Michigan

ACTING under pressure of a well-organized group of shopkeepers, who claimed that they had suffered a 20% loss in business because of one-way streets in front of their shops, the Ann Arbor City Council on Monday evening, January 16th, voted to return the two streets to two-way operation. The streets had been operated as one-way streets since March 22nd, 1948, a period of 678 days as of February 1st, 1950, the date of change-back. Figure 1 shows the physical street pattern.

The lengths of streets involved are as follows: First Street from Liberty to Miller (both secondary thoroughfares) 1325'; Ashley Street from Williams to Miller 1950'.

One fact that makes the situation more interesting from a traffic engineering standpoint was the opening on May 26, 1949 of the municipal "Carpore", the city's new three-deck municipal parking structure. The "Carport", as it is popularly known, has a capacity of 233 vehicles and is located at the southeast corner of First and Washington Streets. From July 1, 1949 to January 31, 1950 the parking structure accommodated 64,229 vehicles. It was, therefore, possible to study the accident effects of an increase of over 125,000 vehicular movements into and out of the area and an increased pedestrian volume greatly in excess of 125,000 persons.

Table I, on the next page, shows accident data during the three types and conditions of traffic movements.

A study of the data persuades the following conclusions:

1. That, under similar conditions of traffic, "one-way" operation *reduced* accidents 31%.

2. That, accidents increase as vehicular and pedestrian volumes increase. During 1949 accidents *increased* 9½%—BUT, even with the extremely large increase in vehicular and pedestrian traffic, the "one-way" operation *reduced* accidents 25%.

When the two streets were returned to "two-way" operation, parking was banned on the east side of Ashley Street, south of Liberty and between Ann and Miller. Parking was banned on First Street, between Washington and Huron and between Ann and Miller. Preliminary figures indicate that the removal of parking is going to materially reduce the number of accidents that occurred under the former "two-way" operation.

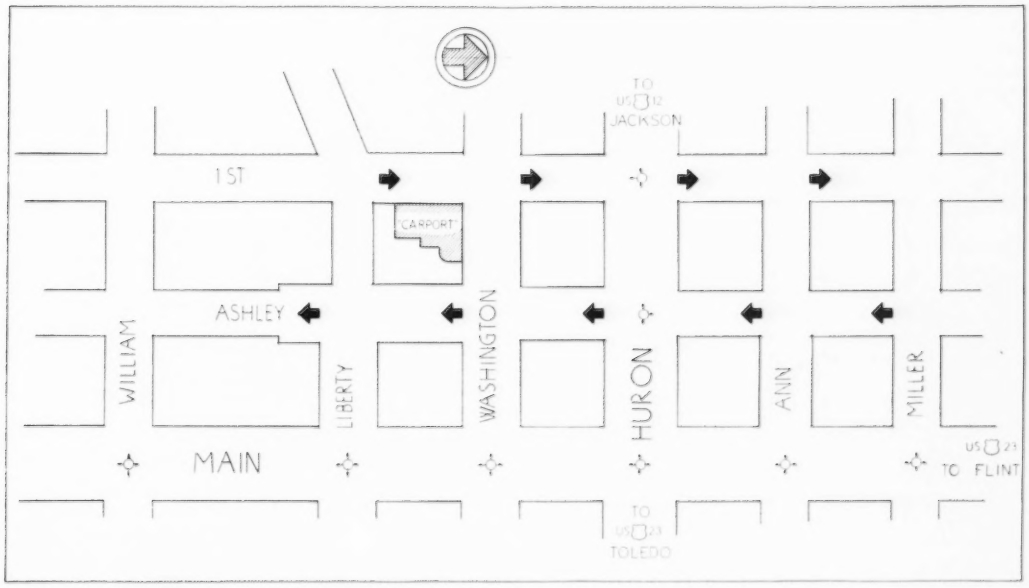


Fig. 1

Type of Operation	Period	Length of Period	Traffic Conditions	Accidents				
					On First Street	On Ashley Street	Total	Av. Acc. Per Year
1. Two-way	1/1/47 to 3/22/48	447 days	Normal. No traffic signals at Huron and Ashley or Huron and First.	Personal Injury	3	2	5	4.1
				Property Damage	18	37	55	44.8
				Total	21	39	60	48.9
2. One-way	3/22/48 to 7/15/49 and 7/22/49	On First St. 480 days On Ashley St. 488 days	Same as 1. above.	Personal Injury	4	4	8	6.0
				Property Damage	17	21	38	27.8
				Total	21	25	46	33.8
3. One-way	7/15/49 and 7/22/49 to 1/31/50	On First St. 201 days On Ashley St. 194 days	Vehicle and pedestrian movements increased by over 100,000. Traffic signals installed at Huron and Ashley and Huron and First.	Personal Injury	1	4	5	9
				Property Damage	7	8	15	28
				Total	8	12	20	37
4. One-way	3/22/48 to 1/31/50	681 days	Same as 3. above.	Personal Injury	5	8	13	7
				Property Damage	24	29	53	28
				Total	29	37	66	35

SALESMANSHIP . . .

(Continued from page 87)

There must be variety; very few subjects on the radio are good for more than three minutes so if you are preparing a fifteen minute program, try to bring in at least five different angles.

Generally, tell listeners what they want to hear. Only under exceptional circumstances can a radio speaker hold an audience merely by giving them what he "thinks" they want to hear. The best illustration of such exceptional circumstances was the occasion of Churchill's speech on "Blood, Sweat, and Tears."

Humor and lightness dress up a radio program if not forced.

Write it out but don't just read.

Educate the announcer; he can help through many difficult spots.

Summary

In summary therefore, let us enumerate these points—

First: sell the product you want to sell wrapped in a package the public thinks it wants to buy.

Second: Sugar-coat traffic and parking restrictions in benefits such as smoother traffic flow, less time loss, and the saving of lives.

Third: Be right in basic principles and sound engineering.

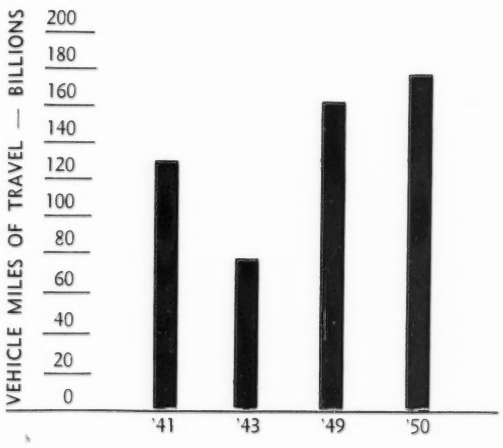
Fourth: Achieve safety, but not at the expense of efficient transportation.

Fifth: Develop a program and sell it to your superiors.

Sixth: Develop citizens' interest and make your achievements their accomplishments.

Finally, work with the newspaper men and radio men; for these professional, practical psychologists can translate your program into words that are music to the layman's ears.

Traffic Trends



TRAVEL ON RURAL ROADS FOR FIRST NINE MONTHS of 1941, 1943, 1949 and 1950.

Based on Bureau of Public Roads Data

The Importance of Adequate Fixed Lighting For Maximum Safety on Expressways

By L. J. Schrenk

Superintendent, Public Lighting Commission, City of Detroit, Michigan

STREET lighting improvements can be seen—they are visible evidence of progress.

Experience shows that modern street lighting produces such an improvement in night visibility that the lives of many thousands of people could be saved each year.

Early in the depression of the '30s, Detroit reduced the use of electric current for street lighting as an economic measure. With fewer foot candles of light falling on Detroit streets, the number of night accidents increased considerably and cost the city more, in money, than the savings on the city's electric bill.

Following the war, traffic began to increase and accidents began to show up on a four-mile stretch of road that connects into the main road to Toledo. In 1945 and 1946 ten were killed, two by day, eight by night. New, modern street lights were installed to bring the light on the pavement up to recommended standards. Since then, no night death has occurred on that stretch of street; the only death occurring in the daytime.

The Detroit industrial Expressway practically parallels U. S. 112 for about 15 miles westward from Detroit, and both carry a heavy volume of mixed traffic, including large commercial vehicles. U. S. 112 is a divided highway for much of its length, but in contrast with the Expressway, it does not have control of access. U. S. 112 is lighted for a portion of its length, but there are no lights on the Expressway. For 1946, comparative accident rates per 100 million vehicle-miles, including both injuries and fatalities, are:[1]

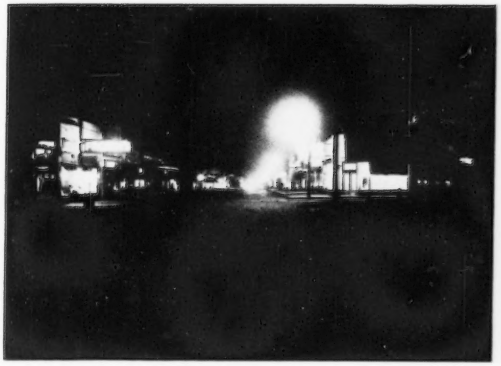
	Day	Night
U. S. 112	517.8	891.5
Detroit Industrial Expressway	69.9	143.4

In both cases, approximately two-thirds of the recorded accidents occurred after dark, when traffic is about one-third that of daylight conditions.

Also in the Detroit area, the Davison Expressway is an outstanding example of safety benefits incident to modern design. It is approximately 1½ miles in length and all roadways are equipped with high-type street lighting. A depressed central section is used for through traffic, and parallel surface drives for local movements.

Records of a four year period, 1945-1948, show that on the depressed section (through traffic) there were 85 day accidents and only 58 night accidents; making night accidents 40 per cent of the total. This night-to-day accident ratio follows the fact that night traffic is approximately one-third that of day traffic.

[1]From report of Committee on Engineering, The President's Highway Safety Conference.



LB-130—McNichols Road, Detroit, before improved lighting.

This low ratio of night-to-day accidents is a testimony to the safety of modern street lighting.

Impaired visibility in darkness creates a serious hazard to motorists and pedestrians alike.

Inability to see or be seen, because of insufficient light, caused the death of over 10,000 persons last year in after dark accidents.

What most people fail to realize is that most of the night accidents could be prevented by the installation of modern safety street lighting on 10 per cent of the nation's city streets and less than 4 per cent of its highways.

If only 50,000 of the nation's 800,000 miles of streets and highways were adequately illuminated, there would be an annual saving of approximately 6,000 lives, 200,000 fewer injuries, 900,000 fewer cases of property damage and a reduction of $250,000,000 in economic loss.

The lights upon which we depend for seeing our way through most of our cities after sunset were installed twenty to fifty years ago, before there were as many trucks, buses and cars as there are today. They are out-dated, and as inefficient by modern standards, as the Model-T Ford.

In many instances, existing lighting systems can be modernized at relatively small conversion costs by the use of fixtures that direct the light more efficiently onto the pavement. In this way, as well as by the installation of entirely new equipment, states and communities can obtain satisfactory illumination levels approaching or equaling those recommended by the Illuminating Engineering Society for various street and highway conditions.

Detroit's first major installation of traffic safety lighting was on 31 miles of streets where 58 people were killed at night and only 8 in the daytime in the fifteen months

before lighting. In the next 18 months, after lighting, the night deaths had dropped to 13 while the day deaths remained about constant at 9.

When conditions indicate the need, the cost of street and highway lighting can often be justified by: (1), reduced traffic fatalities and injuries; (2), reduced property damages; (3), lower insurance rates; and (4), improved night-travel and business conditions.

Good lighting is one of the most effective remedies for night accidents.

WINNIPEG'S PARKING . . .

(Continued from page 94)

three-wheelers to check violation signals rather than the old method of repeated walking tours of the patrol area, chalk-marking vehicle tires. Close check on the illegal practice of depositing more coins to extend parking periods and prevent showing of the violation signal was also possible through periodic use of the standard tire-chalking method.

In most cities where meters have been installed, an additional source of revenue has been provided, which in a great percentage of cases, is at least sufficient to pay the capital costs of meter installation within the first year. While similar experience is expected for Winnipeg, no final report on meter revenues and expenses has been released as yet. Preliminary figures covering a period of nearly three months indicate that meters had provided revenues in excess of those anticipated. To the end of December 1949, revenues have averaged over 34 cents per day per meter, or a total of $101.00 per operating day, as compared with an estimated revenue of $100.00 per operating day. While 304 meters are normally in use, actually only 302 meters can be considered for revenue purposes, since some parking stalls are not always in use due to street and utility maintenance work, and to meter repairs. On this basis for 300 operating days, meters should provide revenue of well over $30,000 annually. This amount would be more than sufficient to pay all capital, operational, and maintenance costs in the first year of operation.

In regard to the operation of meters, the City Traffic Engineer has advised that meter maintenance has not presented nearly as great a problem as first expected. Mechanical and operational efficiencies have been high since the start of operations, and have steadily improved since that time. While some operational difficulty may develop in periods of exereme cold, experience in this regard has been very good to date, and no serious trouble is anticipated.

An additional factor which has not received sufficient attention is the effect parking meters have on businesses located on metered streets. No statistical information is available to indicate their advantages or disadvantages locally, but other cities have reported increased business where meters are installed. This increase, it is reported, results from the greater use of existing space which meters promote. In Winnipeg, a few merchants have unofficially indicated similar increases in business, and no reports have been heard indicating a contrary effect of meter installation.

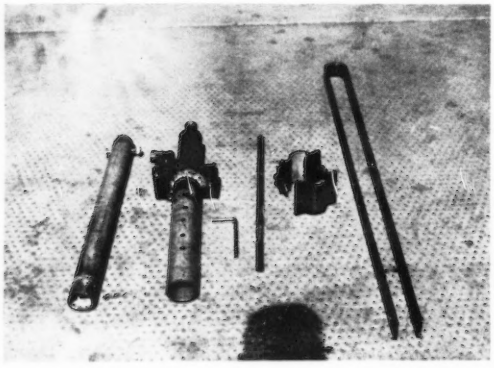
Reference Notes

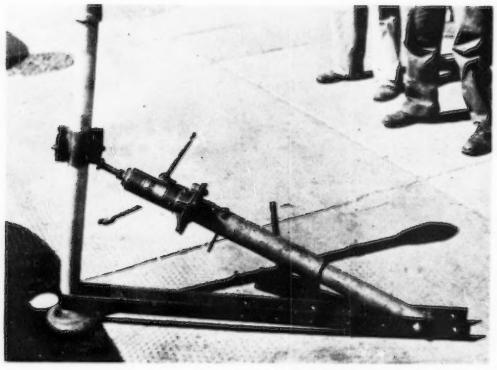
By David F. Dabney (Jun. Mem., ITE)
Asst. Traffic Engineer
City of New Orleans, La.

THE accompanying photographs illustrate a pipe straightener constructed in our shop. I thought you might like to print these in "Traffic Engineering" in order that others may copy it.

All pieces used were scrap available in nearly all shops. The power unit is a three-ton automotive jack that is capable of operation in a horizontal position. The pipe attached to the jack by means of bolts through the plate is 2½" I.D and the extension is 2" I.D. These form a close sliding fit and adjustment is made by the holes drilled through the 2½" section. The 2" pipe is attached to the bottom strap at the end as shown in the picture and further up if the unit is extended over the curb. The clamp was made by splitting a 4" length of 2½" I.D. pipe, welding flanges thereto and attaching swing-out type bolts for ease of operation.

Although this device was made for use on 2" I.D. pipe, it is easily adapted to 1½" pipe by insertion of simple shims made of 2" pipe.





Open Discussion

By Herman J. Hoose (Mem., ITE)
Traffic Engineer
City of Charlotte, N. C.

A Plan for a Permanent Parking Authority

THE Mayor's Parking Committee of the City of Charlotte presented to the City Council the outline of the duties of a permanent Parking Authority. The Committee consists of five members, with the Traffic Engineer being the Advisory Member of the Commission. The following plan for a permanent Parking Authority was presented:

Present Situation

"It is the opinion of the Committee that as a result of the installation of additional meters and increased law enforcement personnel, the present system almost provides for the maximum utilization of available on-street parking space in the center business district. As traffic increases, the on-street parking space will have to be reduced and the burden of off-street parking increased. All vacant property in the downtown area is now being used, at or near capacity, for parking either private or public.

In spite of the full utilization of existing facilities, the lack of adequate parking space is adversely affecting business in the downtown area and the property values there.

Future Prospects

The natural trend now is toward a decrease in on-street parking space because of the growing requirements of moving traffic. The erection of new buildings is eliminating more off-street space than is being created by the removal of old buildings and the enlargement of present facilities. A continuous effort will be required to halt this trend and improve conditions, or even to maintain conditions as nearly satisfactory as they are today. It is vitally important to the landowners and those doing business in the central business district, and perhaps to the city as a whole, that any reasonable and practicable steps be taken which will tend to alleviate the situation.

Recommendations

This committee recommends the establishment of a permanent Parking Commission, composed of five members, to serve on a voluntary basis, appointed by the Mayor with the approval of a majority of the Council, for such terms of office as the Council may determine is wise.

The function of such a Commission will be as follows:

1. The Commission should determine what, if any, additional legislation may be necessary in order to carry out the program hereafter outlined and recommended to the Council that it request our representatives in the legislature to secure the passage of such acts as may be needed in the session of the Legislature commencing January 1951.

2. In general, it would be the responsibility of the Commission, with the aid of the City Manager, Traffic Engineer and other city employees concerned to study the parking problem as it develops from day-to-day and plan in advance for the solution of difficulties before they become acute or the solution of them becomes unnecessarily expensive.

3. Specifically, it is the opinion of this Committee that the Commission should determine the limits of the central business district and any other district which should be excepted from the operation of the provisions of the following paragraph (4). The Commission should define within the excepted districts the particular congested areas lacking sufficient parking facilities and publish notice setting forth the need of such additional facilities. In the event private enterprise failed after a reasonable time to provide such additional facilities, the Commission should work out a plan to enable the city to provide the additional facilities and assess the cost against the landowners in the area. In assessing the cost, proper adjustment should be made for the advantage to be gained by the particular landowner being assessed, including the consideration of any parking space being provided privately by the landowner. Upon the establishment of such a facility by the city, the lease of it should be offered by public bidding to private enterprise for operation according to rules to be set forth by the Commission. In the event no satisfactory bid should be received, the facility then should be operated by the city.

4. The building code of the city should be amended so that no building permit could be issued for the erection or alteration of a building or the change in use of a building in any area other than those expected in the foregoing paragraph without the approval of the Parking Commission. It would then be the responsibility of the Parking Commission to insure that no landowner erected or altered a building or changed the use of a building without providing adequate parking facilities. It is contemplated, of course, that the Commission would be able to make rules whereby the vast majority of building permits could be issued as a matter of routine, on the approval of some regularly employed city official.

5. The Commission should continuously strive to improve on-street parking facilities. In particular, attention should be given to the elimination of unwarranted driveways, and the utilization of loading zones by the general public in the afternoons after most truck deliveries have been made.

The Committee would like to emphasize that irrespective of anything which may have been said in this report and recommendation, it is the intention of the Committee that the City Council would at all times have complete control over the proposed Parking Commission; that the function of the Commission, as outlined in paragraph 3, would be that of advisor and fact-finder for the Council; and all actions of the Commission, outlined in paragraph 4, would be subject to appeal, by anyone interested, to the City Council."

TRAFFIC NEWS

Yale Announces New Fellowship

The creation of a Rand McNally Fellowship in Traffic Engineering at Yale University has been announced by Theodore M. Matson, Director of Yale's Bureau of Highway Traffic.

The new Fellowship is to be awarded annually on a competitive basis to an engineer employed by a city or state highway department. Its $1,400 stipend will apply to a year of graduate study in the Yale Bureau.

In announcing the Fellowship, Mr. Matson pointed out that for many years the Rand McNally Company, of Chicago, Ill., has pioneered in the manufacture of maps and in the collection of highway data. "Their sponsorship of the Fellowship," he said, "is a natural outgrowth of a long interest in highway matters."

The Rand McNally Fellowship will be one of 13 such awards offered by Yale for study in traffic engineering. Other Fellowships are provided by the Automotive Safety Foundation, the American Transit Association and the International Road Federation.

The Bureau of Highway Traffic, established at Yale in 1938, is a center of graduate training and fundamental research in highway matters. Each year it trains a group of 20 to 35 men for a professional career in highway operations and traffic engineering. The current class consists of 34 men from 19 states, India and England.

Membership Information

may be obtained by writing to

Executive Secretary

Institute of Traffic Engineers

Strathcona Hall

New Haven 11, Connecticut

Behind the Scenes with The "Traffic Engineering Handbook"

While mention has been made of the excellent work of Robert J. Allen, Chief Traffic Engineer, Accident Prevention Department, Association of Casualty and Surety Companies, it is felt that the importance of his contribution to the production of the 1950 edition of the "Traffic Engineering Handbook" has been overlooked. Without taking any credit away from Editor Evans and the many other members who devoted much of their time with great personal sacrifice to this edition, we wish to point out that Bob Allen was held *personally* responsible for all of the administrative details of production.

Bob, under Mr. Julien Harvey's supervision, correlated the many intricate mechanical details incident to the promotion, printing, handling and distribution of the Handbook. It was only through his sacrifice of personal time and "burning the midnight oil" that made the distribution of the Handbook possible by the time of the recent annual meeting.

Thanks again, Bob, for everything.

Transit Modernization and Street Traffic Control

by John Bauer and Peter Costello
Chicago, Public Administration Service, 1950, 271pp., $5.00

This volume is a critical analysis of present day street traffic conditions, particularly as they are affected and complicated by inefficient mass transportation systems. Varied experiences with the different types of mass transportation have led to an array of widely varying opinions about the relative merits of different systems. The authors have attempted to analyze the major aspects of the problem and present solutions from their own wide experience in an effort to stimulate discussion and aid in helping municipal officials to develop more positive programs.

In the Preface the authors state: "Our thesis is that municipal control of mass transportation and general street traffic should be combined under a single administrative agency. The purpose of such a program should be (1) to obtain thoroughly modernized mass transportation; (2) to get unnecessary automobiles off the streets; and (3) thus to attain real relief from street traffic congestion. The fundamental requisite is economical and attractive service; when that is provided extensive reduction of street traffic will be attainable, together with financially successful operation. All this should be subject in every city to clear objective, definite program, and resolute administration."

Probably the major subject of disagreement among municipal officials comes over the type of vehicle to be used. The authors are unequivically in favor of the modern bus. They contend that "modernization will consist of getting rid, first, of the old-type street cars, and then of all fixed-line operation as rapidly as may be feasible," and they believe that neither street cars or trolley coaches have the operating flexibilities which are essential if the public is to be induced to use public conveyances instead of private automobiles.

To back up their thesis the authors have dealt in detail with the functions of mass transportation, the distinctions from other utilities and the special needs of regulation; with the standards of modernized service and fares and the basic factors of modernization. They have discussed the arguments, pro and con, about street railways, buses, trolley coaches, with considerable information about the experience of cities of various sizes. They have analyzed the need and program for comprehensive transportation planning and for financial planning, the essentials of modernizing the fare structure and finally the methods of administration with private companies or with public ownership and the general problems of municipal control and administration with either system.

Annual Report of Executive Secretary

(Continued From November Issue)

Training Conferences

The *Institute* continued its support of state-wide "in-service" traffic engineering training conferences during the past year. Your Executive Secretary participated in the first Pennsylvania conference, and the Midwest and Western Sections actively supported the Illinois and Northwest conferences. Once again these conferences proved their value through the attendance and interest developed in the areas covered.

The Board of Direction, at its meeting earlier today, adopted a resolution favoring the continuance of this type of conference through the support of Local Sections and individual members. The resolution also placed the *Institute* on record as not favoring the conduct of traffic engineering courses at Regional Training Institutes. This decision was based on poor attendance and, in some instances, cancellation of such courses. It is the opinion of the Board that much greater gains can be made in the stimulation of traffic engineering knowledge through conferences at the state level.

Public Relations

Your national headquarters continued to maintain active liaison with 60 national and international organizations. Upon special request, envelopes furnished by a few organizations have been run through the Institute's addressograph roster of members for the purpose of mailing information that would be of interest to the membership.

Principle public relations activity of your Executive Secretary has centered on more direct personal contact with individual members. As stated at the beginning of this report, certain information has been disseminated through the medium of the "Secretary's Column". Since this column in the September issue carries a full report on membership contacts, it is deemed unnecessary to repeat the details herein. As stated in the column, these contacts were mutually beneficial to your Executive Secretary and to the membership. It afforded an opportunity for us to acquaint members first-hand with current activities of national headquarters. It also provided an excellent chance for individual members to discuss personal problems and to relay constructive suggestions that will be helpful in improving the efficiency of personnel services of national headquarters and the style, format and content of "Traffic Engineering" magazine. These visitations further serve to improve relationships with non-member traffic and highway engineers and non-professional associates with whom traffic engineers are in daily contact.

As a continuing effort to stimulate interest in the traffic engineering profession approximately 900 invitations to attend the Annual Meeting were directed to 60 national associations, 88 State Highway Officials, Mayors and City Managers of all cities 50,000 population and over, and City Engineers in the 10,000 to 50,000 population group in nine states adjacent to the New York Metropolitan area.

Changes in Constitution and By-Laws

Changes in the *Institute's* Constitution and By-Laws were approved by affirmative vote of two-thirds of all ballots convassed on December 1, 1949. Briefly, the changes are as follows:

(1) Provision for determining time and place of Board of Direction meetings (Const., Art. IV., Sec. 2).

(2) Additional penalty for six months delinquency in payment of annual dues (By-Laws, Art. IV, Sec. 7).

(3) Changes in nomination of election of Officers and Directors to provide for geographical representation on the Board of Direction (Const., Art. III, Sec. 2, By-Laws, Art. V).

A number of far-reaching changes having particular reference to the *Institute's* fiscal year and requirements for the Affiliate grade, adopted by resolution of the Board of Direction, have been submitted for discussion at this meeting.

Committees

Each of the six technical committees experienced an active project year under the supervision of Vice-President Cherniack, their General Chairman. Many important developments related to these projects, the activation of a Technical Council, and the pending inauguration of a Traffic Engineer's Reference Notebook will be reported at this meeting. For the first time in the *Institute's* history, the Board of Direction gave authorization to the incoming President to make unofficial appointments of committee chairmen in advance of the Annual Meeting. This has resulted in a meeting of these chairmen yesterday, and tentative selection of committee personnel for the coming year. You can readily foresee the tremendous advantage gained by this advance planning. Technical committees will now have a full year for project activity and avoid the usual three-month delay previously incurred in voluminous correspondence relative to personnel assignments.

The success of the technical committees is dependent solely on the effort put forth by each individual member. The chairmen are anxious to learn of any member interested in working on any of their various sub-committees. Please feel free to contact any of these chairmen, members of the Board of Direction, or your Executive Secretary if you wish to make a more direct service contribution to the *Institute* and to the traffic engineering profession.

The six Administrative committees continue to provide capable and efficient support to national headquarters and to the membership. Special recognition is due the work of your Annual Meeting committees who are responsible for the preparation, planning and conduct of the meeting. You have already seen much evidence of their work in various news bulletins and in "Traffic Engineering" magazine. Each of you will be pleased with the results of their efforts by the time of the closing sessions and special features on Wednesday.

Local Sections—Student Chapters

Each of the seven regional and local sections of the *Institute* have experienced an exceptionally active year, and continue to play more important roles in national, regional and local circles.

The infant Florida Section was dealt a severe blow when its President and Vice-President left the state to assume new positions during the first months of the year. Despite this loss, the membership participated in local meetings sponsored by IMSA, ASCE, IES, and the Florida Engineering Society. The Florida Section, first to establish Local Section Affiliates, is also first on providing its Local Affiliates with gratis subscriptions to "Traffic Engineering" magazine.

The Michigan Section became the fifth local section to adopt constitution provisions for Local Section Affiliates. The section also actively participated in the Michigan Safety Conference and sponsored one meeting for the benefit

of the newly-activated Student Chapter at the University of Michigan.

The Midwest Section's request for provisions in their Constitution and By-Laws for Local Section Affiliates was approved by the Board of Direction at the last annual meeting. The section sponsored an extremely successful statewide traffic engineering conference during the year and participated in the National Safety Conference, Midwest Safety Conference and Northwestern Institute for Traffic Training. The section also sponsored a special luncheon for members of the Highway Research Board's Department of Traffic and Operations, which met in Chicago last February. The September issue of "Traffic Engineering" magazine carries the story of the Section's "F & F Club" outing with the national Board of Direction as honor guests.

The New England Section again participated in the annual Connecticut Traffic Engineering Conference and held a joint meeting with the Highway Planning Officials of the North Atlantic States. The section continued to play an active role in the affairs of the Connecticut Technical Council and invited the Yale University Student Chapter to attend its meetings.

The New York Metropolitan Section has necessarily concentrated most of its time and energy toward the successful conduct of the *Institute's* Annual Meeting. This section also received Board approval at the last Annual Meeting to constitutional changes authorizing Local Section Affiliates. Two of the regular meetings were scheduled in conjunction with the annual meetings of ASCE and the Greater New York Safety Council.

The Washington Section spent a well-deserved and relatively quiet year after the successful conduct of the 20th Annual Meeting of the *Institute*. The Section played host to many out-of-town members attending the annual meeting of the Highway Research Board.

The Western Section, now numbering 98 members, continues to set the pace for other sections, particularly in increasing membership. Due to the geographical scope of the section, eleven area meetings were held to provide maximum attendance and participation of the membership. The section again sponsored several traffic engineering conferences and individual members participated in 14 other traffic meetings of a state or regional nature. The "Western ITE" bulletin continues to provide the necessary link for keeping members informed of activity of individual members and area meetings. The Section's two-day Annual Meeting in Los Angeles attracted nearly 150 members and guests and was an outstanding example of the advancement of the section and the traffic engineering profession in that area.

Two new student chapters at the University of Michigan and Cornell University were activated during the past year. All of the four chapters experienced an active year, with the Michigan Chapter setting the pace with its excellent program of guest speakers.

The coming year may develop several new local sections and student chapters if preliminary inquiries provide any advance indication. This desire on the part of local groups to get together on a common meeting ground is just another indication of the healthy growth and progress of the organization.

Addendum

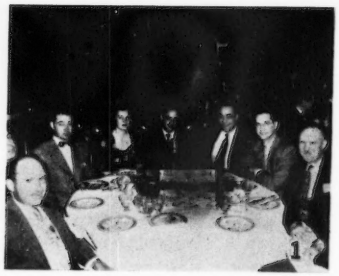
In closing this report I would like to again express the sincere appreciation of your Executive Secretary for the fine cooperative teamwork of the membership, the Board of Direction, the Headquarters staff, and particularly the helpful guidance and support of President Smith. Only through the combined effort of everyone concerned is a report of this nature made possible.

Respectfully submitted,

ROBERT S. HOLMES
Executive Secretary

Special Appreciation

The Institute of Traffic Engineers owes a debt of gratitude for the excellent photographic work of Henry A. Barnes (Mem., ITE) from Denver, Colorado, who devoted much of his time at the annual meeting taking the photographs shown in this issue and the October issue of "Traffic Engineering" magazine. Good work, Hank, and thanks a million.



(1) The delegation from the Western Section wear a smug expression after learning that Los Angeles was selected as the site for the 1951 convention. Left to right: Al Pepper, Dan Gerlough, Norman Kennedy, Mrs. Carlton Robinson, Carlton Robinson, Fred Fowler, Don Berry and Kenneth Vaughan-Birch. (2) A "bevy of beauties" in an informal pose arranged by photographer Hank Barnes during the annual banquet.

Road Traffic and Its Control

by Sir Alker Tripp
London, Edward Arnold & Co.
Second Edition, 1950, 416pp., $7.50

This is a new edition of a classic work on the characteristics and controls of the highway traffic. The author's thesis as stated in the Preface to this edition is that the whole complex of overcrowded roads, appalling accident records, waste in time and money which makes up the "traffic problem" stems from unsuitable layout. He points out that on the railways the toll of casualties is as nothing compared with that of the roads and thinks that the reason is obvious. On the railways the required layout came first and the high speeds followed, but the original design was suitable for the eventual speeds. On the highways, however, there wasn't a specific design for a specific vehicle and the original design was wholly inadequate for not only a vastly increased speed but for a less exclusively mechanical transport.

The text itself, however, is not confined to a discussion of the design of

roads and streets for modern traffic. It is divided into eight parts, each of which covers in considerable detail a major aspect of traffic control. Part I is general and introductory. Part II discusses traffic control by law and police. This section deals with police methods down to hand signals for directing traffic at intersections and special arrangements for mass gatherings or ceremonial occasions or holiday traffic. It continues with discussions of law as an essential social contract and the consequent necessity for public support and then continues to traffic law in particular and enforcement by police and courts.

Part III (Delevopment of Traffic Policy) discusses "traffic problems"—road safety, pedestrians, cyclists, driver licensing, vehicles and their mechanical requirements, etc. and problems of cross-traffic, obstructions, waiting vehicles, public and commercial vehicles, peak load periods and even the problem of the street trader.

Part IV deals with traffic control by construction and mechanical appliances and includes the planning of roads and streets and adaptations of existing ones.

Part V discusses road government and administration; Part VI deals with road transport; Part VII is concerned with statistics and their use and misuse and Part VIII discusses road casualties, causes and prevention.

In conclusion the author comes back to his early statement that the only effective cure for our ills is to re-design the road system so as to segregate fast motor traffic from the populace. To accomplish this, he says, roads must either be conduits for main traffic streams *or* local roads, not both. Building development must be divorced from the traffic roads. Exposure of pedestrians to main traffic streams must be entirely prevented on new roads and reduced wherever possible on existing ones.

New Traffic Line Striper

A new traffic line striper, the Reflecto-Liner, designed specifically for reflective coatings, but which will handle all modern marking materials, has been recently introduced by Wald Industries, Inc. of Montgomery, Pa.

The Reflecto-Liner has been designed to maintain a 100% reserve air supply during operations without hardening the motor or compressor. The striper features a "Nu-Matic" air gun, which is of high capacity and air controlled, producing a uniform cross distribution of material. It has ample displacement for reflective material. The "Nu-Matic" design minimizes replacement parts. The gun holder provides for both lateral and vertical adjustment.

The Reflecto-Liner is equipped with a wide mouth tank (5¾ inches in diameter) providing ample space for thorough cleaning. The tank is of 12 gallon capacity.

The new striper is operated by a 6 H.P. (AKN, Wisconsin) Hi-Speed, air cooled gasoline engine, capable of handling the heaviest reflective coatings without strain. It operates at 2 to 5 miles per hour.

A Tip on Buying Brake Fluids

Now is the time to "winterize" your automobile brake fluid. Sliding around on ice and snow is bad enough without adding the danger of skidding from unequal braking action. Freezing cold weather thickens your brake fluid. A cold, thick, sluggish fluid does not flow easily through the hydraulic lines. Because the lines to the front wheels are much shorter than the lines to the rear wheels, the left front brake nearest the master cylinder may grip in cold weather before the pressure reaches the other wheels. Uneven braking occurs. This causes the car to swerve and increases skidding on icy or wet pavements. The use of inferior brake fluids that become too thick and viscous in winter is dangerous to the people in your car, and to motorists and pedestrians who are finding it difficult to get around in the ice and snow.

In order to be safe from accidents caused by sluggish or slow braking action, insist upon your serviceman draining and refilling the system with a fluid that meets SAE "Heavy-Duty" specifications—or at least, a fluid of a quality recommended by the car manufacturer. The SAE "Heavy-Duty" fluids are higher in quality than many now being sold for refills. They only cost a few pennies more per filling because as little as a pint is needed. But the added insurance is worth hundreds of times the difference to your safety. Be sure to ask for SAE "Heavy-Duty" fluid.

LOOKING AHEAD

JANUARY 4-26, 1951. BERKELEY, CALIFORNIA
California Conference on Street and Highway Problems. Contact: Institute of Transportation and Traffic Engineering, University of California.

JANUARY 8-12, 1951—WASHINGTON, D. C.
Thirtieth Annual Meeting. Highway Research Board. National Academy of Sciences, 2102 Constitution Avenue.

MARCH 4-6, 1951—BIRMINGHAM, ALABAMA
Twelfth Annual Southern Safety Conference. Tutwiler Hotel. Contact: Braxton B. Carr, Executive Secretary, Southern Safety Conference, 2120 First Avenue, N., Birmingham 3, Alabama.

APRIL 3-6, 1951—NEW YORK, N. Y.
Twenty-first Annual Greater New York Safety Convention and Exposition. Hotels Statler and Governor Clinton. Contact: Paul F. Stricker, Executive Vice-President, Greater New York Safety Council, Inc., 60 East 42nd Street, New York 17, N. Y.

JUNE 4-8, 1951—CHICAGO, ILLINOIS
Twenty-eighth Annual Midwest Safety Conference. Congress Hotel. Contact: Joseph F. Stech, Manager, Greater Chicago Safety Council, Suite 805, 10 North Clark Street, Chicago 2, Illinois.

New Commercial Vehicle Driver Training Film

"Caution at the Crossroads", first of a series of short films designed to provide training for drivers of commercial vehicles, has been released by the National Association of Automotive Mutual Insurance Companies. Prints in either 16 mm. sound slide motion film or in 35 mm. sound slide film may be secured through the association's Accident and Fire Prevention Division, 919 North Michigan Avenue, Chicago, or through the mutual automobile insurance carriers making up the association's membership.

Each film of the series will be devoted to a specific accident-producing condition or situation.

"Caution at the Crossroads" carries

its audience from one intersection situation to another, using the training device of conversation between a seasoned driver-trainer and the student he is instructing, and employing only proved and accepted safe driving practices. The film applies to both long-haul and local delivery operations, and while primarily a training film for commercial vehicle drivers its message is of value to all drivers.

"Caution at the Crossroads" has a running time of 11 minutes. The 16 mm. version may be used on any standard 16 mm. sound motion picture projector; the 35 mm. version requires use of a standard 35 mm. sound slide film projector. A technique unusual in the training film field was employed in making the 16 mm. version. Approximately 20% of the footage—including opening and closing sequences—is a conventional sound motion picture, while the balance consists of a series of slides with coordinated voices.

Finger Twiddling

The other day I picked up a state road map, I don't recall the state, on the back of which were some silhouettes of cars with arms of ponderous proportions protruded in preposterous positions, purported to be a sort of semaphore code for indicating the drivers' intentions.

We've all heard the quip that when a hand is seen extended from a car window the only thing that we can be certain of is that the window is open. When we see such pictures and the silly antics of drivers in response, we just about conclude that the quip is "99 and 44/100 per cent" true.

Along about the same time I read an item in a paper that a man had had his arm torn off in a side swipe while signaling a left turn (Probably from the wrong lane). I have seen several other reports of similar but not so serious injuries. Likewise there have been reports of many arm injuries resulting from the driver resting his elbow out the window.

Now isn't that a bit silly? In every mode of transportation except the highway, passengers and operators are constantly warned not to poke part of their anatomy outside the vehicle and many conveyances are constructed so that they can't. But the motor car not only makes it possible and custom makes it frequent but along comes the law and says the driver *must* do such an act right in the midst of a critical process of driving when the bodily member in question is needed to operate the vehicle properly.

Not long ago I also saw a set of "safe driving rules" which, if followed to the letter, would have required about 4 arms and 3 legs, whereas man, by some freak of nature, has only two of each. Curiously enough man also has a dome filled with "gray matter", presumably for the purpose of thinking and the Good Lord has no objection to him using it—even on the highway.

A few years ago I had some of my students make a "turn survey". One thousand turning movements were observed on local streets which were also state highways and consequently carried a considerable number of "foreign cars" so the results were not limited to local people. Out of the 1000 only 347, or 34.7% made the turns in a reasonably satisfactory manner so far as the turns themselves were concerned. Hand signals were given by a total of 97, or 9.7% of the drivers, but of these only 13, or 1.3% of the total turns or about 13.4% of the signals, were approximately correct. Out of the grand total only *two*, or 0.2% made a correct combination of signal and turn. One of these two was a State Police car which did a perfect job.

The principal defects in the turns were: turning from the wrong lane, turning into the wrong lane, following the wrong path, over-running the turn, and creeping up while awaiting an opening and thus getting into the wrong place. All of these cause delays and introduce hazards.

The hand signals were mostly defective in time and place. Practically every law requires that the driver signal his *intention* to turn and most of them specify a minimum distance. The common practice was, however, to wait until about the time to turn and even after the turn was started, then twiddle the fingers out the window for 1½ to 2 seconds, and go on, smugly complacent of having performed a duty.

A minor observation was that many if not a majority of women signaled "thumbs down", i.e., with the palm of the hand to the rear while the majority of men signaled "thumbs up" with the palm to the front. Now, nobody cares a whoop about that but it might make a good thesis subject for a Ph.D. in sex psychology.

Nobody seems to know or care where these so-called "hand signals" come

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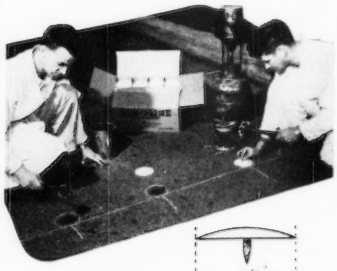

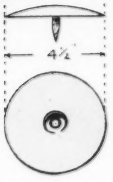

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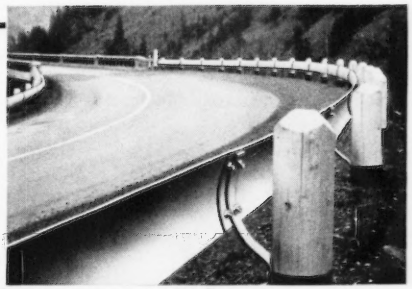

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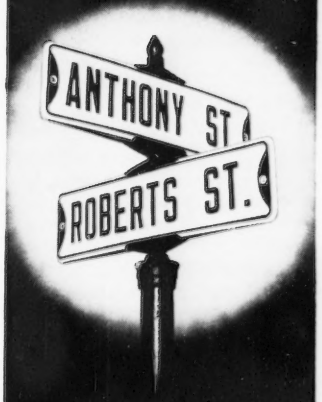

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TOLEDO, OHIO

from. They just seem to have sprung up like button weeds in a new lawn, maybe from seeds dropped by the Model T. Back in the days of the high, narrow, open car, wobbling along by daylight at a glorious 20 m.p.h. there might have been a ghost of an excuse for the idea. But in these days of low, wide, closed wagons humming along by both day and night at a 60-70 tempo, "finger twiddling" seems a bit out of the picture. Maybe a shot of 4-D-2 or something is needed.

A few years back the mechanical turn-signal appeared, looked fine on the advertising circulars and bright and shiny when taken out of the box; but, when put into service wasn't worth the "tin" it was made out of. The makers thought of just about everything except visibility. More recently "built-in" varieties have appeared but many of these are just as bad, but there does seem to be some signs of improvement. The best ones are far apart, as they should be. Most of them are flashers which is good signaling. Most of them are simple lights instead of fantastic corruptions of arrows. Many of them are red, which doesn't fit standard signaling. Some use white which has low visibility by day and on the front is killed by the headlights at night, but this might be improved if bulbs bright enought (that you didn't have to light a match to see if they were burning) were used.

If such contraptions are desirable it is high time that a scientific study be made of them to determine location, size, color, brilliance, etc. The landscape gardeners should be put to trimming hedges instead of "designing" car bodies, instrument panels, turn signals, etc. and some *engineers* (traffic) put on the job.

C. C. Wiley (Mem., ITE)
Prof. Hwy. Eng'g,
University of Illinois

PLEASE MENTION

TRAFFIC ENGINEERING

When Writing

To Advertisers

Mitchell Completes 20 Years Service

Robert A. Mitchell, Chief, Bureau of Traffic Engineering, Department of Public Safety, City of Phidalephia, completed 20 years of service as an employee of the city on November 1, 1950. On that date Bob became eligible for the city's pension plan.

Bob received several honors on the occasion of this important milestone in his long and successful career. He was presented with a higher Civil Service grade by the City Council. The members of the Bureau of Traffic Engineering also gave a special party for him and presented him with a leather suitcase. The "piece de resistance" of this affair was a special song made up by Bob's talented Superintendent of Traffic Signs, Vince McCormick. The song, to the tune of "Sing a Song of Sixpence, a Pocketful of Rye", goes, in part, as follows:

Listen little children, and you shall hear
Of the trials and tribulations of the Traffic Engineer
Hardly a person is now alive,
Who wouldn't like to work at old "Seven-Eighty-Five".

CHORUS:

Sing a song of signals: sing a song of signs,
Traffic Engineering is ahead of the times,
With every sign erected and the crosswalks done
And every signal working, let's have a little fun.

Old "Seven-eighty-five" is atop City Hall
And everyone there is strictly "on the ball"
The "gals" put a sparkle in tired, old eyes,
And act like benzedrine on younger guys.

Then take the crews who go to great pains
Painting perfect center lines and traffic lanes,
Limit lines, stop lines, trolley swings,
Cross-walks, arrow-heads and other damn things.

Shed a tear for the boys who make all the signs
That fill the City Treasury with saw-buck fines.
They paint steel plates in red, black and white
And educate the motorist to always keep right.

And now, give a bow to heroes unsung;
Traffic signs are useless until they are hung.
So raise up your glass to the sign-hanging crew
Who hang 'em so high that they're all out of view.

And now give a cheer for the signal men
Whose three little lights work,—now and then.
To keep traffic flowing in a rhythmic stream
With ruby-red, amber and light, chrome green.

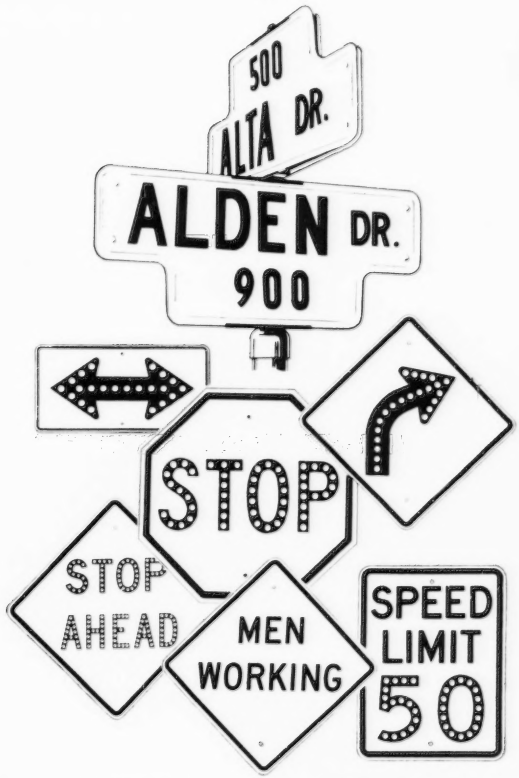
Traffic Engineering is the real "smart set"
Comparisons are odious and you can lay a bet,
With the blue chips down, any jury will acclaim
That "TRAFFIC ENGINEERING" is an honor-able name.

(Copyright 1951. All rights reserved U. S. and Canada. V. P. M.)

(1) This photograph should be captioned "left at the dock." The chairman of the Local Arrangements Committee, Ed Wetzel, and one of his important sub-committee chairmen, Mer Kraft, were so busy "paying off" the Commodore Hotel that they missed the boat by a half minute. However, by utilizing the services of the Harbor Police, the excursion craft was returned to the dock in time to pick up the party shown waiting to join the delegates on the boat. (2) The past and the present pose for a picture aboard the excursion boat. Left to right: Past President Wilbur Smith and President Harry Neal.

TO EFFECTIVE

TRAFFIC CONTROL.....



Grote SIGNS

Here are high-visibility signs for practically every traffic control need; Street name plates for instant recognition of name and number; parking signs that politely enforce traffic control; road signs to improve highway safety. Built for years of dependable, long-wear service, all GROTE Signs are made of heavy, zinc coated, Bonderized steel, finished with special baked enamel processes that make them permanently bright and attractive — that resists the action of weather, salt spray, smoke or airborne chemicals. All are made to the Grote high standards of manufacture and conform to the accepted official standards and recommended uniform sign systems. For economy purchase and installation, always specify Grote Signs.

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Grote Square
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Opposite Cincinnati

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Contributing authors are 16 of the Nation's leading traffic and transportation engineers.

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Preparation under direction of Traffic Engineering Handbook Editorial Board.

SOME FEATURES:

520 pages; 215 illustrations; 205 tables and 489 definitions of traffic terms.

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II Vehicle Motion
III The Driver
IV The Pedestrian
V Traffic Accidents
VI Traffic Studies
VII Traffic Markings and Markers
VIII Traffic Signs
IX Traffic Signals
X Parking and Loading
XI One-Way Streets and Arterial Routes
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XIV Traffic Islands and Pedestrian Barriers
XV Pedestrian Islands and Bus Loading Zones
XVI Street and Highway Lighting

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Position Available

We have received notice from a large engineering consulting firm that they are interested in retaining the services of a full-time traffic engineer. This particular organization has maintained a highway staff of between 100 and 200 men in the past seven years and is in almost constant need of competent help on traffic engineering matters. The salary is open and entirely dependent upon the caliber and experience of the individual applicant. It appears to be an excellent opportunity for a traffic engineer interested in working for a private organization. Direct your inquiries to "Traffic Engineering," 211 Strathcona Hall, New Haven 11, Connecticut.

The new *Carry-Liner Trailer* is designed to transport large type portable traffic striping machines. It is manufactured by Wald Industries of Montgomery, Pa.

Constructed of structural steel the Carry-Liner Trailer is fitted with a locking tongue bar to facilitate easy loading. The trailer is 48 inches wide by 112 inches long, with a wheel tread of 38 inches.

The loading of a striper on the Carry-Liner is a one man operation, because of the balance tongue design. This feature minimizes back-strain of workers as well as damage to striping machines.

The trailer may be hitched to truck or car for easy transport to working location. When work is completed it may be rolled away by one man for storage.

The Carry-Liner has been road tested at high speeds to assure safe transport at legal speeds.

ON THE SHELF

Compiled by
Mrs. Kathryn Cassidy, Librarian
Yale Bureau of Highway Traffic

St. Paul, Minnesota. City Planning Board.

Information Report to the Planning Board Regarding the Proposed Central Routing of the "East-West Highway". Submitted and approved by the Board May 12, 1950, C. David Loeks, Associate City Planner. The Board, 1950. 7pp., mimeo., maps.

A study to be used as the basis for policy formulation by the board in planning the route connecting St. Paul's business center with that of Minneapolis.

Chamber of Commerce of the United States. Transportation and Communication Department.

A Bibliography of Publications in the Field of Street and Highway Traffic. Washington, D. C., The Chamber, July, 1950. 19pp.

A classified selected list of publications on the various aspects of highway and traffic problems.

New York Regional Plan Association.

Municipal Off-Street Parking Systems. Regional Plan Bulletin No. 76, August, 1950. 8pp.

A report of the activities and methods employed in various communities to provide more adequate off-street parking facilities.

Council of State Governments.

Highway Safety—Motor Truck Regulation. Chicago, The Council, 1950. 184pp., tables, charts.

A discussion of the problems of highway safety—licensing of drivers, traffic control regulations, enforcement, police methods, traffic courts, etc. and a discussion of the special problems involved in the regulation of motor trucks—fuel and other taxes, regulation of size, weights, loads, etc.

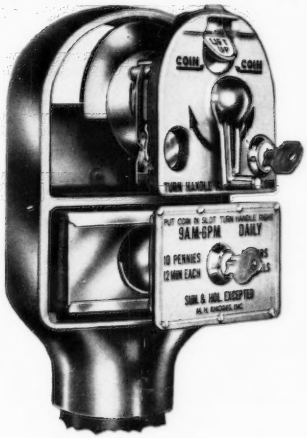
Highway Research Board

Requirements for Off-Street Automobile Parking Facilities in Zoning and Other Local Ordinances, by David R. Levin. The Board, Division of Engineering and Industrial Research, National Research Council, May, 1950. Bulletin No. 24.

In two sections. Section one contains the discussion of the overall problem. Section two contains "basic zoning ordinance data by local units."

Announcing the sensational new damage-proof, wear-proof

MARK-TIME HURRICANE PARKING METER



With the most modern, most perfectly engineered head yet designed

It is with pride that the M. H. Rhodes Corporation announces the *new* Mark-Time Hurricane meter that eliminates breakage and possible malfunction. Years of continuous research have gone into the planning and production of this new meter that is the latest product of M. H. Rhodes Inc. engineering "know-how". The *new* Mark-Time parking meter is designed for even greater simplicity and durability, while retaining the basic design that has already made Rhodes Mark-Time manual meters first in the parking meter field.

The Boston Traffic Commission was so impressed with the *new* Mark-Time Hurricane meter that it purchased 3000 Mark-Time Hurricane meters in the largest single order ever placed.

Amazingly Simple in Operation

These few operating parts in the amazingly simple manually operated Mark-Time parking meter give positive assurance that NOTHING can go wrong under normal operating conditions. Now, with the sensational improvements built into it, the *new* Mark-Time Hurricane head is as nearly damage-proof and wear-proof as scientific research and precision engineering can guarantee.

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now YOU can have a traffic signal with an optical system that *remains CLEAN inside*

CROUSE-HINDS

Dust-Tight Traffic Signal

Greater light output
Increased visibility
Lower maintenance

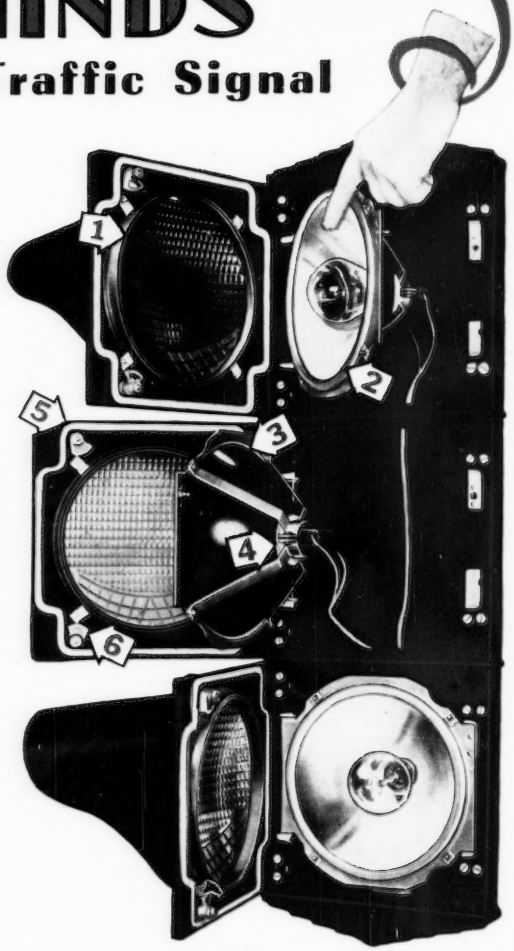
Now you can have a traffic signal with an optical system that will retain its peak efficiency for the life of the signal, through all conditions of atmosphere and climate . . . Crouse-Hinds Dust-Tight Traffic Signal with the

Twin-Ring
Molded Rubber Dust Seal

This specially designed dust seal performs the vital function of resealing the optical system each time that it is opened for servicing.

This new Crouse-Hinds construction makes the traffic signal system more effective and greatly reduces maintenance.

Enduring quality is built into every Crouse-Hinds traffic signal by using only carefully selected materials and highly skilled workmanship. Write for additional information on this outstanding development in the field of traffic engineering.



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Park-O-Meter pioneered the features that make metered parking a *must* in traffic control. For instance, these: Sealed precision timing unit . . . 50-yard visibility from both sides . . . complete convertibility permitting either cumulative or conventional reset . . . selective multiple-coin operation . . . visual trouble signal . . . slug-protector windows . . . automatic coin dumping to speed collection . . . a completely integrated unit engineered from the ground up.

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Park-O-Meter continues to prove itself the first choice of modern American cities . . . *and there is ample reason.* Park-O-Meter offers more modern features than any other meter. It is more adaptable to changed and changing needs. It is accurate . . . never cheats the public . . . never cheats the city. Study Park-O-Meter before you obligate your city for parking meters.

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REFLECTS SAME SHAPE, same color day and night! Overall reflectorizing with "Scotchlite" *Flat-Top* Sheeting gives your signs real nighttime *target value* . . . they reflect the familiar *shape* of warning signs in the familiar *color* that motorists see by day!

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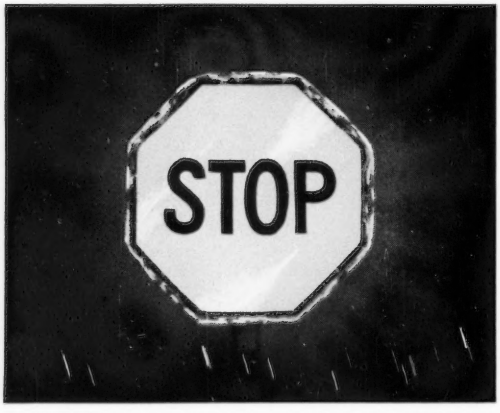

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On August 23, 1949, ten different pavement marking materials were laid on a Class A street in Washington, D.C., by the Department of Vehicles and Traffic. After 134 days, condition of all materials was observed for wear and future serviceability. "CENTERLITE" Compound was rated to last a total of 202 days—longer life than any other material.

But—on August 24th, 1950, "CENTERLITE" Compound started its second year, and at the printing of this magazine is the only material left still considered serviceable.

Proof that "CENTERLITE" Compound is more effective, longer lived, and lower in cost per mile per month of service than any of the other materials tested, regardless of initial cost!

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BRAND
REFLECTIVE
COMPOUND

TEST LINES on August 24, 1950, show "CENTERLITE" Compound starting its second effective year! Longest in life—lowest in cost per day!

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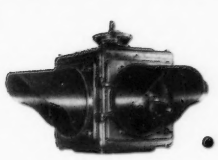
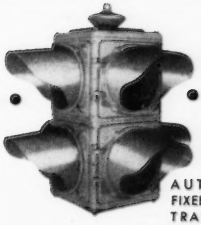
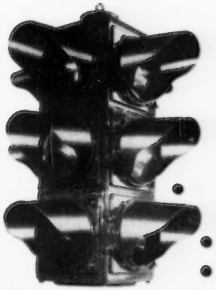


AUTOFLOW FOUR-WAY FIXED FACE BEACON (TYPE F14SW).



AUTOFLOW FOUR-WAY FIXED FACE TWO-SECTION TRAFFIC SIGNAL (TYPE F24SW).



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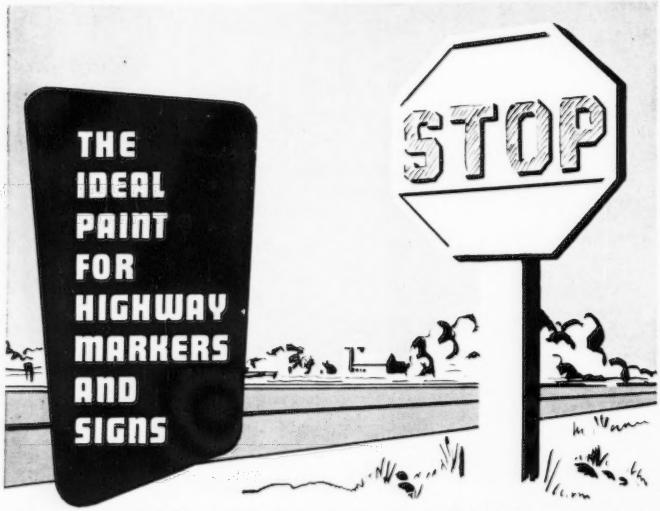

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For Most Efficient Handling of HIGH-VOLUME INTERSECTIONS

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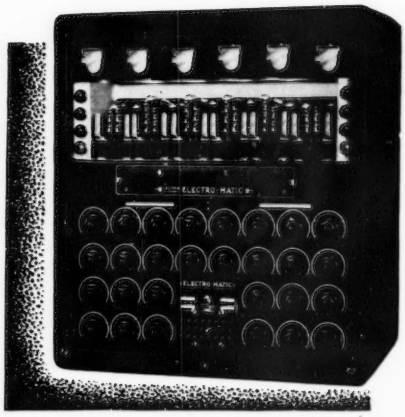
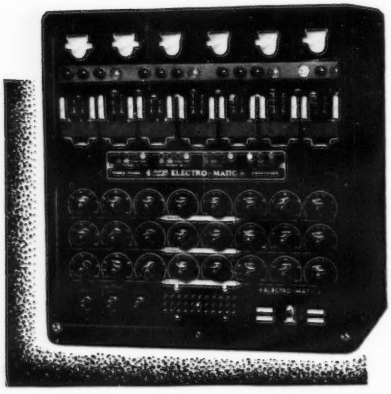
Model 1022 SUPER ELECTRO-MATIC brings 2-phase control to its highest pitch of efficiency. Volumes are "counted-in" on both phases. Density of moving traffic is measured and waiting time evaluated. Vehicle and initial intervals are continuously adjusted for best over-all operation. Needless delay is entirely eliminated. Its "platoon-responsive" features facilitate progressions through a series of 1022-controlled intersections, without interconnection.





For the control of difficult high-volume intersections where traffic must be handled in 3 phases, the volume-density principle of the Model 1033 SUPER ELECTRO-MATIC is of utmost importance. Each phase is controlled with maximum efficiency at all times. Any phase having no traffic is omitted from the cycle. There are built-in provisions for signalling up to three overlaps where such movements may safely be allowed.

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CATAPHOTE CORPORATION 105
CROUSE-HINDS 110
DUAL PARKING METER COMPANY 84
H. E. FLETCHER COMPANY 105
GENERAL ELECTRIC CO. ..... 4th Cover
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INTERNATIONAL METERS, INC. ..... 2nd Cover
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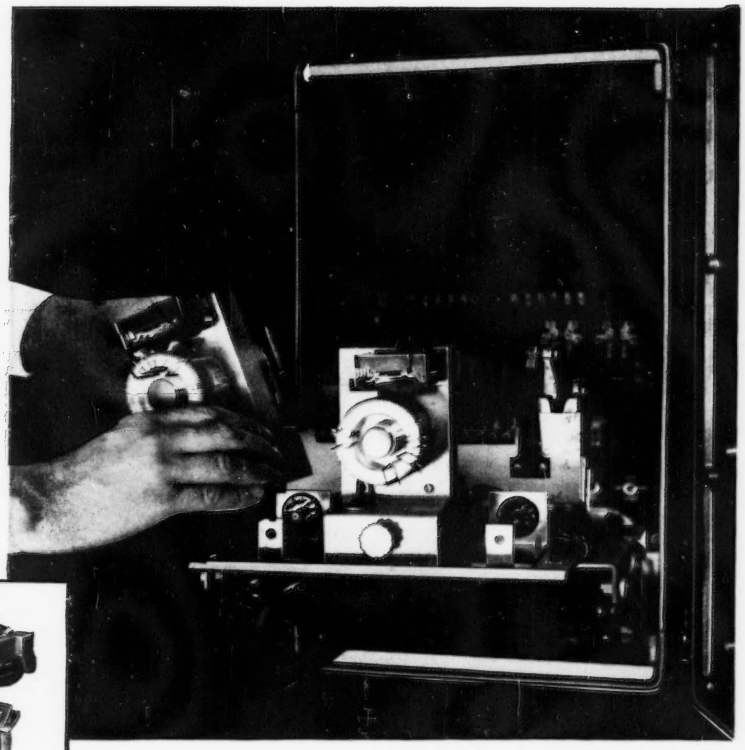
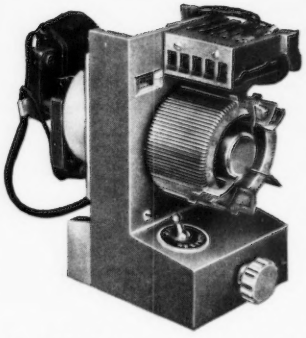
TUTHILL SPRING COMPANY 105

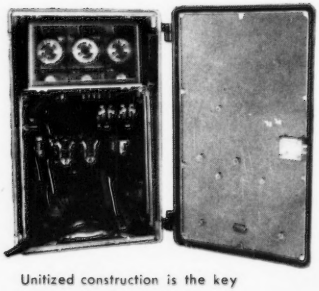
The Controller that grows with traffic!



You can convert a one-dial controller to two dials by just plugging in the second dial unit and its latch relay.



Each dial unit has its own synchronous motor, timing gear, dial contacts and timing keys.



Unitized construction is the key note of this new design controller—thus major parts can be readily replaced for servicing in a matter of minutes.

This is General Electric's new expansible controller. Buy it as a one-dial unit. Use it with or without interconnection. As traffic volume builds up or as conditions change just plug in a second dial unit—or a third. That's how easy it is to keep your traffic-control system growing with traffic!

This new traffic controller is a finer piece of equipment mechanically and electrically—as well as completely new in design. It greatly simplifies your planning and buying; it increases reliability and cuts maintenance. Let your nearest G-E Apparatus Sales Office or traffic control distributor show you how. Apparatus Department, General Electric Company, Schenectady 5, N. Y.

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